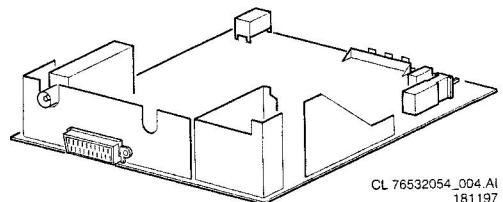


Service Service **Service**

A7H.1



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Table of contents

Page

| | | |
|-----|--|------------------|
| 1. | Technical specifications | 2 |
| 2. | Connection facilities | 2 |
| | Location of panels | 2 |
| 3. | Safety instructions, Maintenance instructions, Warnings and Notes | 3 |
| 4. | Mechanical instructions | 3 |
| 5. | Block diagram Survey of test points | 4 |
| | Overview wave forms | 5 |
| | Diagram supply voltages survey | 5 |
| 6. | Fault finding tree | 6 |
| | Repair facilities | 6 |
| 7. | <i>Electrical diagrams and print lay-outs</i> | <i>Diagram</i> |
| | Power supply | (Diagram A1) 9 |
| | Deflection | (Diagram A3) 10 |
| | Synchronisation | (Diagram A4) 11 |
| | Controls | (Diagram A5) 12 |
| | Tuner + IF + Scart | (Diagram A6) 13 |
| | Video + sound | (Diagram A7) 14 |
| | Smart loader interface | (Diagram A6a) 15 |
| | Interface | (Diagram A8) 15 |
| | Teletext | (Diagram A9) 16 |
| | CRT (14" mn, 20"+21" nn) | (Diagram B1) 17 |
| | Clock-display | (Diagram E1) 18 |
| | Radio-module | (Diagram E2) 18 |
| 8. | Electrical adjustments | 19 |
| 9. | Circuit description | 19 |
| 10. | Directions for use | 21 |
| 11. | List of abbreviations | 22 |
| 12. | Spare parts list | 23 |

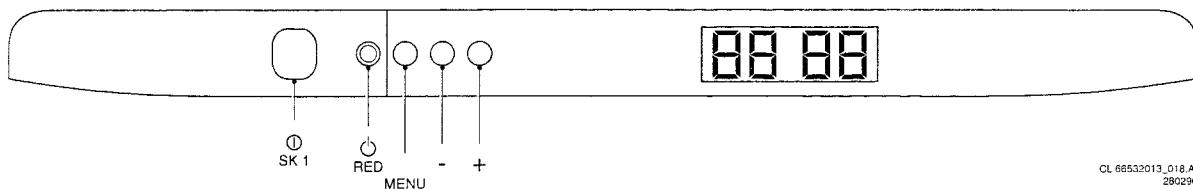


2 Chassis A7H.1

1. Technical specifications

| | | | |
|-------------------------------|--|-----------------------------|--|
| Mains voltage | : 220 - 240 V ± 10% AC; 50 Hz ± 5% | Indications | : On Screen Display (OSD) green/red |
| Power cons. at 220V~ | : 14" 43 W (stand-by ≤ 6 W) : 17" 45 W (stand-by ≤ 6 W) : 21" 63 W (stand-by ≤ 6 W) | | : 1 LED (○ red for stand-by, ○ green for TV-on, blinking red for "RC5" and error code) |
| Aerial input impedance TV | : 75Ω - coax | VCR programs | : 0 |
| Min. aerial input VHF | : 30μV | Tuning and operating system | : ■■■■■ PLL |
| Min. aerial input UHF | : 40μV | UV916E / IEC (PLL) | : VHFa: 48 - 118 MHz : VHFb: 118 - 300 MHz |
| Max. aerial input VHF/UHF | : 180mV | U944 / IEC (PLL) | : Hyper: 300 - 470 MHz : UHF: 470 - 861 MHz |
| Pull-in range colour sync | : ± 300Hz | | : UHF: 470 - 861 MHz |
| Pull-in range horizontal sync | : ± 600Hz | | |
| Pull-in range vertical sync | : ± 5Hz | | |
| Picture tube range | : 14", 17", 21" : 1 W mono execution: 4" full range round 25Ω 2W : 3 W mono execution: 4" woofer round 16Ω 3W 1" tweeter round 16Ω 3W | | |
| TV Systems | : PAL I : PAL BG : PAL BG / SECAM BGDK : PAL BG / SECAM BGL' | | |

Local operating functions

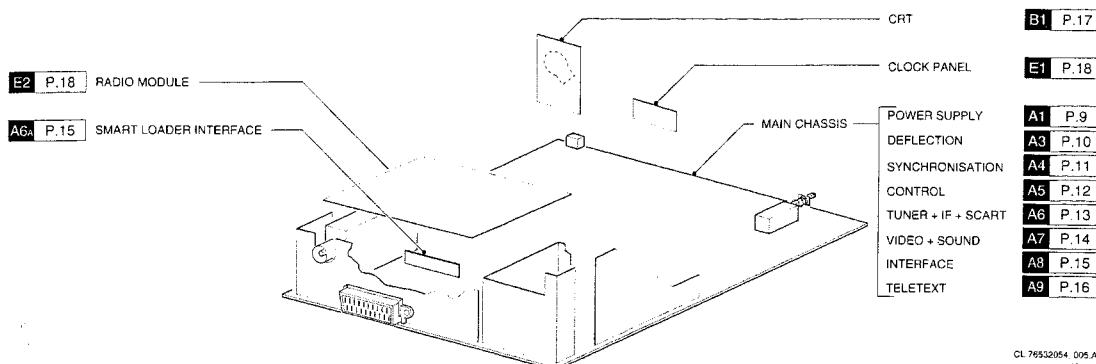


2. Connection facilities

Euroconnector:

| | | |
|--|--|---|
| | 1 - Audio G R (0V5 RMS ≤ 1kΩ) | 14 - +5SI to smart-loader |
| | 2 - Audio Θ R (0V2 - 2V RMS ≥ 10kΩ) | 15 - Red (0V7pp/75Ω) |
| | 3 - Audio G L (0V5 RMS ≤ 1kΩ) | 16 - RGB-status (0-0V4 int.)(1-3V ext. 75Ω) |
| | 4 - Audio ⊥ | 17 - CVBS ⊥ |
| | 5 - Blue ⊥ | 18 - CVBS ⊥ |
| | 6 - Audio Θ L (0V2 - 2V RMS ≥ 10kW) | 19 - CVBS G (1Vpp/75Ω) |
| | 7 - Blue (0V7pp/75W) | 20 - CVBS Θ (1Vpp/75Ω) |
| | 8 - CVBS-status 1 Θ (0-2V int., 10-12V ext.) | 21 - Earthscreen |
| | 9 - Green ⊥ | |
| | 10 - SDA to smart-loader | |
| | 11 - Green (0V7pp/75Ω) | |
| | 12 - SCL to smart-loader | |
| | 13 - Red ⊥ | |

Location of panels



3. Safety instructions, Maintenance instructions, Warnings and Notes

Safety instructions for repairs

1. Safety regulations require that during a repair:
 - The set should be connected to the mains via an isolating transformer;
 - Safety components, indicated by the symbol "!", should be replaced by components identical to the original ones;
 - When replacing the CRT, safety goggles must be worn.

2. Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points:
 - As a strict precaution, we advise you to resolder the solder joints through which the horizontal deflection current is flowing, in particular:
 - all pins of the line output transformer (LOT);
 - fly-back capacitor(s);
 - S-correction capacitor(s);
 - line output transistor;
 - pins of the connector with wires to the deflection coil;
 - other components through which the deflection current flows.

Note:

This resoldering is advised to prevent bad connections due to metal fatigue in solder joints and is therefore only necessary for television sets older than 2 years.

- The wire trees and EHT cable should be routed correctly and fixed with the mounted cable clamps.
- The insulation of the mains lead should be checked for external damage.
- The mains lead strain relief should be checked for its function in order to avoid touching the CRT, hot components or heat sinks.
- The electrical DC resistance between the mains plug and the secondary side should be checked (only for sets which have a mains isolated power supply). This check can be done as follows:
 - unplug the mains cord and connect a wire between the two pins of the mains plug;
 - set the mains switch to the on position (keep the mains cord unplugged!);
 - measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ;
 - switch off the TV and remove the wire between the two pins of the mains plug.
- The cabinet should be checked for defects to avoid touching of any inner parts by the customer.

Maintenance instructions

It is recommended to have a maintenance inspection carried out by a qualified service employee. The interval depends on the usage conditions:

- When the set is used under normal circumstances, for example in a living room, the recommended interval is 3 to 5 years.
- When the set is used in circumstances with higher dust, grease or moisture levels, for example in a kitchen, the recommended interval is 1 year.

The maintenance inspection contains the following actions:

- Execute the above mentioned 'general repair instruction'.
- Clean the power supply and deflection circuitry on the chassis.
- Clean the picture tube panel and the neck of the picture tube.

Warnings

1. In order to prevent damage to ICs and transistors, all high-voltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).

2. ESD

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.

Available ESD protection equipment:

| | |
|---|----------------|
| anti-static table mat; | |
| large 1200x650x1.25mm | 4822 466 10953 |
| anti-static table mat; | |
| small 600x650x1.25mm | 4822 466 10958 |
| anti-static wristband | 4822 395 10223 |
| connection box | |
| (3 press stud connections, 1 MΩ) | 4822 320 11307 |
| extension cable (2 m, 2 MΩ); | |
| to connect wristband to connection box | 4822 320 11305 |
| connecting cable (3 m, 2 MΩ); | |
| to connect table mat to connection box | 4822 320 11306 |
| earth cable (1 MΩ; to connect any product to mat or connection box) | 4822 320 11308 |
| complete kit ESD3 (combining all 6 prior products; small table mat) | 4822 310 10671 |
| wristband tester | 4822 344 13999 |

3. Together with the deflection unit and any multipole unit, the flat square picture tubes used from an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.
4. Be careful during measurements in the high-voltage section and on the picture tube.
5. Never replace modules or other components while the unit is switched on.
6. When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

Notes

1. The direct voltages and oscilloscope should be measured with regard to the tuner earth (L), or hot earth (L⁺) as this is called.
2. The direct voltages and oscilloscope shown in the diagrams are indicative and should be measured in the **Service Default Mode** (see chapter 6) with a colour bar signal and stereo sound (L:3 kHz, R:1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
3. Where necessary, the oscilloscope and direct voltages are measured with (T) and without aerial signal (X). Voltages in the power supply section are measured both for normal operation (O) and in standby (O). These values are indicated by means of the appropriate symbols.
4. The picture tube PWB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
5. The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.
6. Manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY, the double D symbol and PRO LOGIC are trademarks of Dolby Laboratories Licensing Corporation.

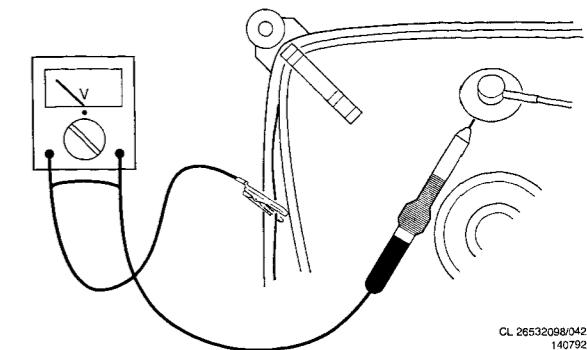


Fig. 3.1

4. Mechanical instructions

For the main carrier two service positions are possible (Fig. 4.1):

- A: For faultfinding on the component side of the main carrier.
- B: For (de)soldering activities on the copper side of the main carrier.

Position A can be reached by first removing the mains cord from its fixation, then loosen the carrier lips (1) and then pulling the carrier panel (2) for approximately 10 cm.

Position B can be reached from position A after disconnecting the degaussing cable.

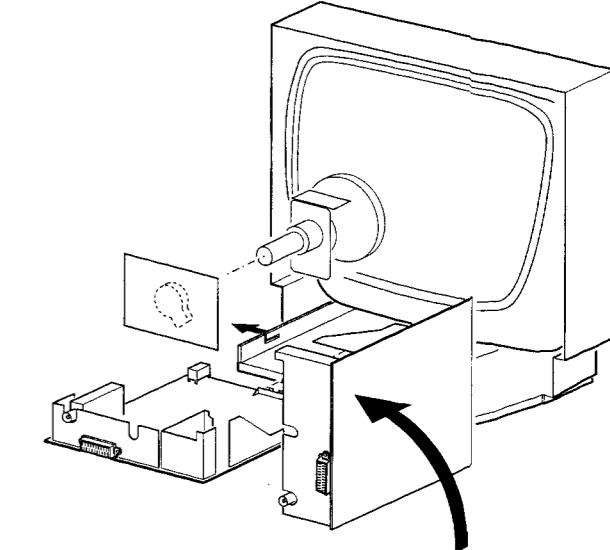
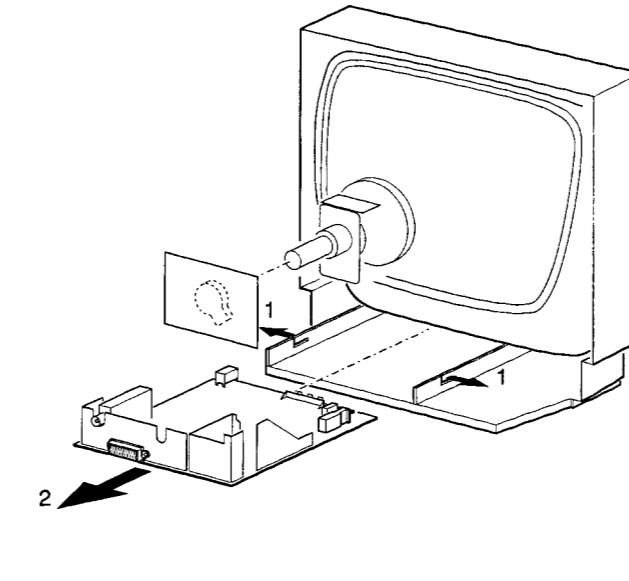
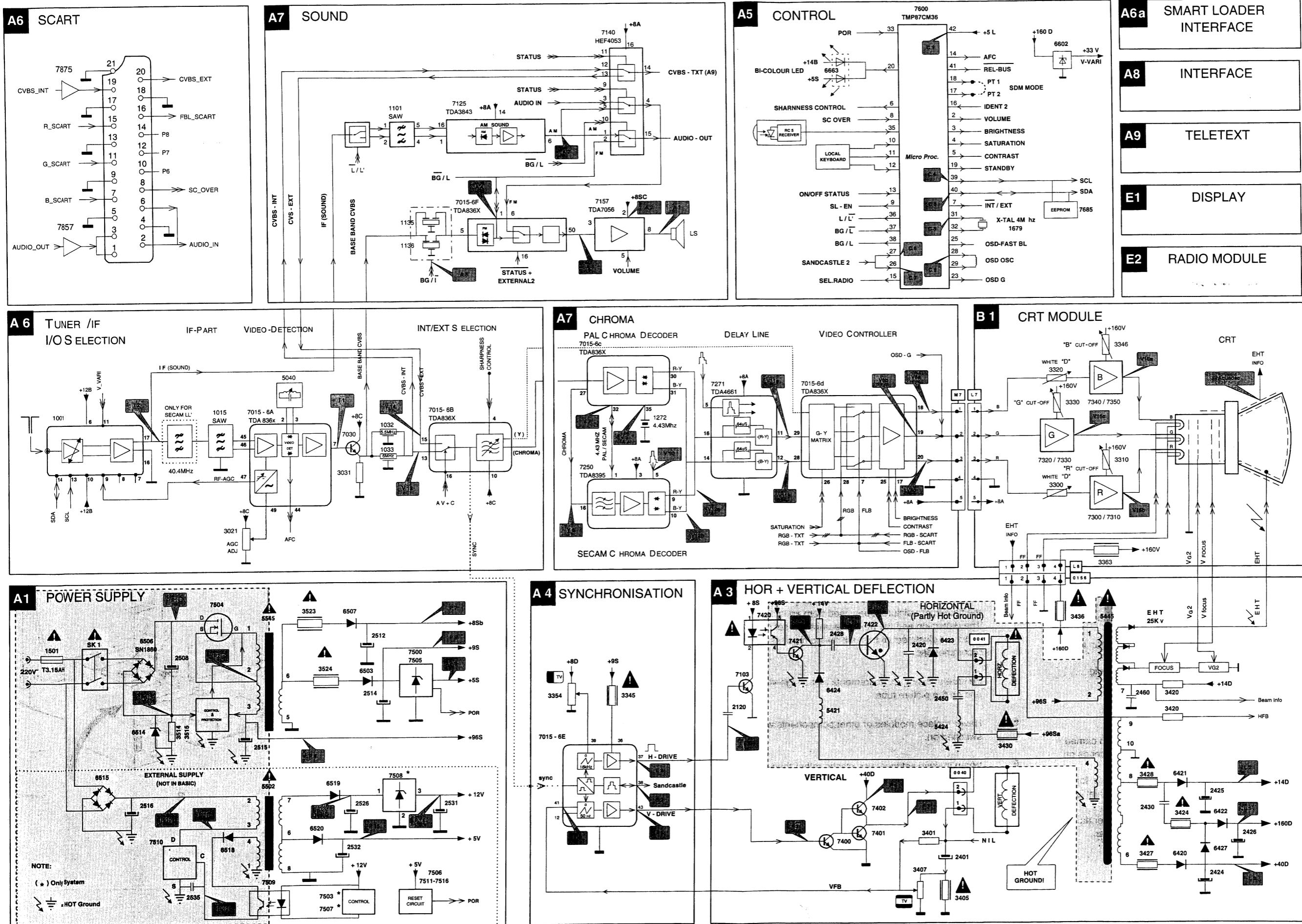


Fig. 4.1

5. Block diagram / Blockschaltbild / Schéma-bloc Chassis A7H.1 4

Block diagram / Blockschaltbild / Schéma-bloc

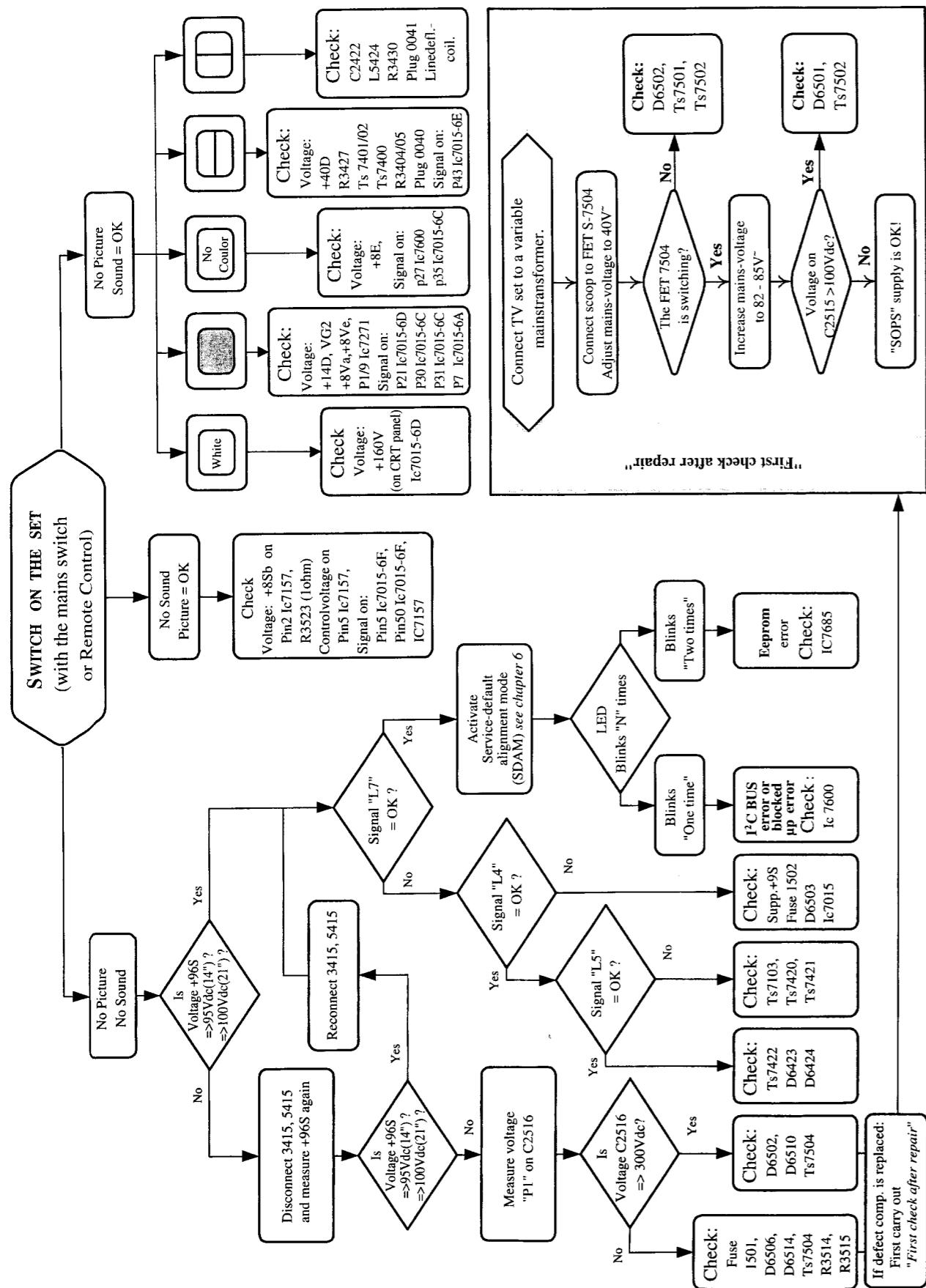


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6. Fault finding tree & Repair facilities / Fehlersuchbaum & Reparaturhinweise / Aide au depannage & Conseils pour la réparations

Chassis A7H.1

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Repair facilities

1. Functional blocks

On both the service printing on the copper and the component side, functional blocks are indicated by lines and text.

2. Test points

The AA5H chassis is equipped with test points in the service printing on both sides of mono-board. These test points are referring to the functional blocks as mentioned above:

- * P1-P2-P3, etc: Test points for the power supply
- * L1-L2-L3, etc: Test points for the line drive and line output circuitry
- * F1-F2-F3, etc: Test points for the frame drive and frame output circuitry
- * S1-S2-S3, etc: Test points for the synchronisation circuitry
- * V1-V2-V3, etc: Test points for the video processing circuitry
- * A1-A2-A3, etc: Test points for the audio processing circuitry
- * C1-C2-C3, etc: Test points for the control circuitry
- * T1-T2-T3, etc: Test points for the teletext processing circuitry

The numbering is done in a for diagnostics logical sequence; always start diagnosing within a functional block, in the sequence of the relevant test points, for that functional block.

3. Service default-alignment mode (SDAM)

The service default-alignment mode is a pre-defined mode which can be used for faultfinding (especially when the TV gives no picture at all). All oscillograms and DC voltages in this service manual are measured in the service default-alignment mode. Alignment (if present) are also done in this mode.

Activate the service default-alignment mode can be done in 2 ways:

1. By short-circuiting the service pins PT1 and PT2 of the microcomputer (pin 14 of IC7600) while pressing the mains-switch.
2. From normal operation mode by pressing the button "DEFAULT" or "ALIGN" on the DST (Dealer Service Tool) RC7150.

Leaving the service default-alignment mode to normal operation can only be done by the stand-by on the remote control or by pressing diagnose 99 followed by the OK-button on the DST (so not via mains switch "off"; after mains switch "off" and then "on" again the set will start up in the service default-alignment mode again to enable easy faultfinding).

"S" for service menu active →

Option code + Counter + Software version →

Error code history →

Functions of the service default-alignment mode:

1. All analogue settings (volume, contrast, brightness and saturation) are in the mid position.
2. Set is tuned to 475.25 Mhz.
3. Delta volume settings are not used (delta volume setting = a delta on the volume setting).
4. OSD error message (present available error code) is displayed continuously.
5. The +key and the -key of TV will act as search and auto store on the maximum program number.
6. Automatic switch off function (set switches "off" after 15 minutes no IDENT) will be switched off.
7. Hotel mode will be disabled.
8. All other functions remain normal controllable.
9. Software version of the microprocessor used in that typical set is displayed in the right top corner.
10. A counter in the middle of the screen indicate the normal operation hours of the set in a hexadecimal code (every time the set is switched "on" the counter is incremented by 1 hour, so +1 at the counter).
11. The "S" in the middle of the screen above the counter indicate that the set is in the service default-alignment mode.
12. Option code: This code indicates the Options setting of the set.
13. Error code history: The 5 last different error codes occurred are stored in the EEPROM memory; last error code detected will be displayed on the left side (see for an overview of all possible error codes Fig. 6.3), so e.g.:

| | |
|---------|--|
| 0 0 0 0 | means no error codes present in the buffer. |
| 3 0 0 0 | means one error code present in the buffer; error code 3. |
| 2 3 0 0 | means two error codes present in the buffer; last detected error code is error code 2, previous detected error code is error code 3. |

The error code history buffer is cleared when the Service Menu is left by the stand-by command or by diagnose 99 command. In case the Service Menu is left by the mains switch "off" the error code history buffer will not be cleared. With commands diagnose 1..5 on the DST it is possible to read out the error-buffer. This can be done on the following manner:

- press the diagnose button on the DST.
- press the number of the error position you want to read.
- press the OK-button on the DST.

Diagnose 1 is the most actual error. So the left position of the error-buffer. Diagnose 5 displays the most right position of the error-buffer. If there is an error on the selected position the led will blink twice the error code. The error code on the DST has to be ignored. Diagnose 1..5 is an powerful tool to read out the error-buffer when there is no picture.

| S | F4 | 003C | 1.0 |
|---|----|-------|-----|
| | | 23000 | |

Fig. 6.1

Repair facilities

4. Option setting

All option setting are done in the normal menus. These menus can be selected by selecting the maximum TV-channel followed by pushing the volume/program selection button and at the same time pressing the volume-minus button for more than four seconds. With cursor up/down one of the items can be selected. With cursor right/left the items can be changed. New option settings are activated immediately.

The following options can be chosen:

| | | |
|-----------------|---------|---|
| System | SINGLE | For a BG,DK or BG/DK set. |
| | MULTI F | For a BG+L+I set. |
| | UHF | For a I, UHF only set. |
| Teletext | YES/NO | Teletext can be selected yes or no. |
| Clock | YES/NO | Clock can be selected yes or no. |
| Radio | INT | To select internal radio tuner. |
| | EXT | This means that the radio is external. In this way TV-presets could be used as radio. The installation of these kind of programs is the same as for TV programmes. Radio channels can be modulated by the system installer on TV frequencies. |
| | NO | No radio available. |

5. Option code

The option code is built up with 8 bits. The following table explains which option influences which bit.

| BIT | Description |
|---------|--|
| 0 (LSB) | Not used |
| 1 | Interface system 0=non system 1=system |
| 2 | Radio internal 1=radio present |
| 3 | Not used |
| 4 | Clock 1=clock present |
| 5 | Teletext 1=txt present |
| 6 | Tv-system |
| 7 (MSB) | Tv-system |

Fig. 6.2

Tv-system (bit 7 and bit 6)

- 00 = single PAL
- 01 = PAL I
- 10 = not used
- 11 = MULTI-F

| "OSD error number" (Service Menu) | "LED behaviour" | Error description | Possible defective component |
|--------------------------------------|------------------------|------------------------------|-----------------------------------|
| 0 | No led blinking | No error | |
| 1 | LED blinks once | General I ² C bus | |
| 2 | LED blinks twice times | Eeprom error | IC7685 |
| 3 | LED blinks three times | TXT-error | IC7700 / 7990 / wrong option |
| 4 | LED blinks four times | PLL-tuner error | Item 1001 / wrong option |
| 5 | LED blinks five times | Radio-module error | IC7904 / item 1910 / wrong option |
| 6 | LED blinks six times | Display error | IC7951 |

Fig. 6.3

Example: option code F4 (hexadecimal presented) means a full multi set non system with teletext, clock and internal radio. F4 is in binary 1111 0100.

6. Error messages

The microcomputer also detects errors in circuits connected to the I²C (Inter IC) bus. These error messages are communicated via OSD (On Screen Display) and a flashing LED in the service default-alignment mode. (error code history buffer):

1. In normal operation:

In normal operation no errors are indicated.

2. In the service default-alignment mode:

In the service default-alignment mode both the "OSD error code" and the "LED error" indication will display the present detected error twice.

7. Hotel mode

7.1 Hotel-mode "on"

To enter to hotel mode a setting must be changed in the installation menu.

7.2 Function of the hotel mode

- Volume cannot be increased above the maximum level installed.
- Store open/close is ignored, message "LOCKED" is shown.
- Local keys are blocked. If the blocking option is set, a message "LOCKED" is shown when a local key is pressed.
- All protected programs cannot be selected. To free protected programmes the remote control key "PIP on/off" must be pressed or the relevant menu item must be changed. This key works as a toggle function.

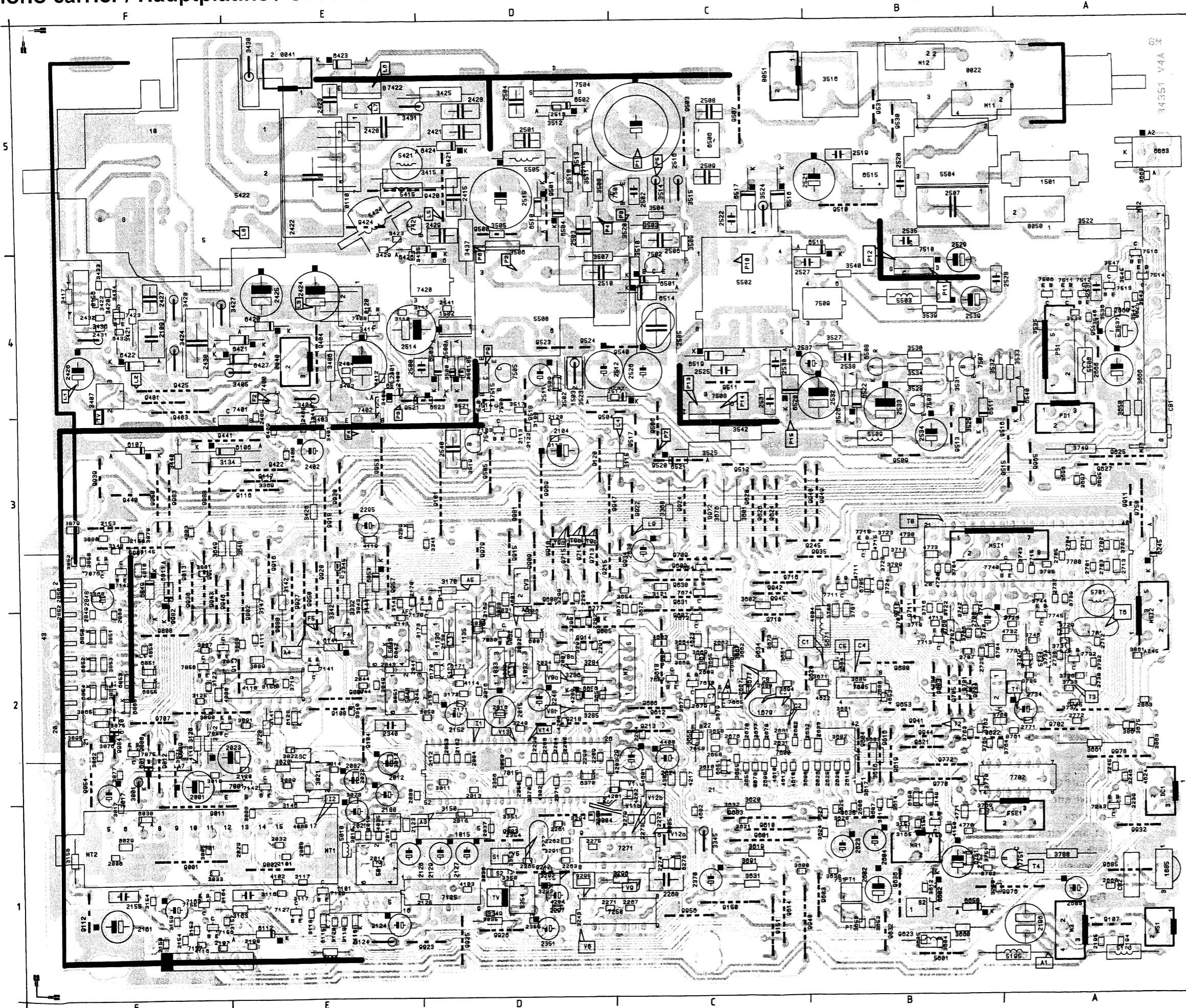
7.3 Hotel-mode "off"

To leave to hotel mode a setting must be changed in the installation menu. Same setting as in the Hotel-mode "on".

Mapping main chassis

| | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|------------------|
| 0022 B | 2263 D1* | 2615 B2* | 3121 C3* | 3436 F4 | 3672 C2* | 4003 F3* | 6420 E4 | 7665 C2* | 9616 B2 | CB2 A1 |
| 0025 A4 | 2265 D1* | 2620 B2* | 3124 E1 | 3437 D4 | 3673 C2* | 4006 D2* | 6421 E4 | 7670 C2* | 9618 C2 | CV1 A2 |
| 0040 E4 | 2267 C1* | 2623 B1 | 3125 F2* | 3440 F3 | 3674 C2* | 4008 E1* | 6422 F4 | 7672 C2* | 9619 B2 | CV3 D3 |
| 0041 E5 | 2268 C1 | 2624 C2 | 3126 F2* | 3500 D4* | 3675 A2* | 4031 E1* | 6423 E5 | 7674 C3* | 9620 B2 | DC1 A1 |
| 0043 F2 | 2271 C1* | 2625 B2* | 3127 E2* | 3501 D4* | 3676 C3 | 4102 E1* | 6424 D5 | 7685 B2 | 9621 B2 | FSE1 A1 |
| 0050 A5 | 2272 C1* | 2626 B2* | 3134 E3 | 3502 D4 | 3677 C2* | 4103 D1* | 6426 D4 | 7700 A3 | 9622 A2 | M11 A5 |
| 0051 B5 | 2273 C1* | 2629 C2 | 3141 E2* | 3503 C4 | 3678 C2* | 4110 E2* | 6427 E4 | 7702 A2 | 9623 B1 | M12 B5 |
| 0110 E5 | 2274 C1* | 2630 C3 | 3142 E3 | 3504 C5 | 3679 C2* | 4111 E2* | 6500 D4 | 7711 B3* | 9624 C3 | M3 A1 |
| 0120 E4 | 2275 D1* | 2631 C2* | 3143 E3 | 3505 D4 | 3680 C2* | 4114 D2* | 6501 C4 | 7713 B2* | 9625 A3 | M7 C2 |
| 0156 F4 | 2279 C1* | 2632 B2* | 3144 E3 | 3506 D4 | 3681 B2* | 4116 F1* | 6502 D5 | 7715 B3* | 9626 C3 | ML1 F3 |
| 1001 F1 | 2280 D1* | 2633 B2* | 3145 F3* | 3507 C4 | 3682 B2* | 4118 F2* | 6503 D4 | 7731 A2* | 9627 A3 | ML2 F3 |
| 1015 D1 | 2283 D2* | 2651 C2* | 3146 E2 | 3508 C5 | 3683 B2* | 4119 E3* | 6504 D5 | 7732 A2* | 9628 C3 | ML3 F3 |
| 1032 D2 | 2284 D2* | 2658 C2 | 3147 E3 | 3509 C4 | 3684 B2* | 4150 B1* | 6505 D4 | 7740 A3* | 9630 C3 | ML4 F2 |
| 1033 D2 | 2285 D2* | 2660 A1* | 3148 F3* | 3510 C4 | 3685 B2* | 4201 C2* | 6506 C5 | 7745 A2* | 9631 C3 | ML5 F2 |
| 1101 E1 | 2289 C2* | 2662 C2* | 3149 B1* | 3511 D5 | 3691 C1 | 4202 C2* | 6507 C4 | 7751 A1 | 9632 B1 | MR1 B1 |
| 1135 D2 | 2290 D2* | 2663 C2* | 3150 D1 | 3512 D5 | 3694 C2* | 4203 C2* | 6508 B4 | 7856 F2* | 9633 C1 | MS1 A1 |
| 1136 D2 | 2291 C2* | 2666 A4 | 3151 B1* | 3513 D5 | 3695 A3* | 4204 D1* | 6509 D4* | 7857 E2* | 9634 C2 | MS11 A3 |
| 1272 D1 | 2292 D2* | 2667 C2* | 3152 F1* | 3514 C5 | 3696 A3* | 4208 D2* | 6510 D5 | 7858 E2* | 9635 B1 | MS12 A2 |
| 1501 A5 | 2293 D3* | 2668 A4 | 3153 D2 | 3515 C5 | 3697 A3* | 4209 D2* | 6511 A3 | 7875 F2* | 9636 B1 | PD1 A3 |
| 1502 D4 | 2294 C2* | 2669 C2* | 3154 F1* | 3516 B1* | 3698 B2* | 4217 C2* | 6514 C4 | 7876 F3* | 9653 B2 | PS1 A4 |
| 1503 D4 | 2295 E3 | 2670 C2* | 3155 B1* | 3517 D4* | 3702 A3* | 4302 D2* | 6515 B5 | 9000 F2 | 9680 B2 | PT1 B1 |
| 1679 C2 | 2297 D1 | 2676 C2* | 3156 E2* | 3518 D5 | 3704 B3* | 4303 C2* | 6516 C5 | 9001 F1 | 9685 A1 | PT2 B1 |
| 1685 A1 | 2298 D2* | 2677 C2* | 3157 E1* | 3519 D3* | 3705 A3* | 4408 C2* | 6517 C5 | 9002 E1 | 9701 B2 | S2 B1 |
| 1701 A2 | 2340 E2 | 2678 C2* | 3158 F1 | 3520 C4 | 3706 B2* | 4601 C2* | 6518 B4 | 9003 D1 | 9702 A2 | = Chip component |
| 2001 F2 | 2345 E3* | 2679 C2* | 3159 F1 | 3521 D4 | 3707 B2* | 4602 C1* | 6519 C4 | 9004 D1 | 9704 B2 | |
| 2006 F1 | 2350 D2* | 2680 C2* | 3163 E1 | 3522 A4 | 3709 B3* | 4603 C2* | 6520 B4 | 9005 C1 | 9705 B2 | |
| 2007 D2* | 2351 D1 | 2681 C2* | 3164 E1* | 3523 D4 | 3713 B3* | 4616 B2* | 6521 C3 | 9007 E2 | 9707 F2 | |
| 2008 E1* | 2354 D1* | 2682 B2* | 3165 B1 | 3524 C4 | 3714 A2* | 4617 C2* | 6522 B4 | 9008 F2 | 9708 E2 | |
| 2010 E1* | 2355 D1* | 2685 A1 | 3169 D2 | 3525 C3 | 3716 B2* | 4618 C2* | 6523 D4 | 9009 F2 | 9709 C3 | |
| 2011 E1* | 2360 D2* | 2686 B2 | 3170 D3 | 3526 B4 | 3718 B2* | 4622 B2* | 6524 E4 | 9011 F1 | 9710 C2 | |
| 2012 E2 | 2370 C1 | 2689 C2* | 3171 D3* | 3527 B4 | 3719 E2* | 4623 C2* | 6540 A4 | 9012 F2 | 9711 B2 | |
| 2013 D2* | 2371 D2* | 2701 A2 | 3172 D2* | 3528 B4 | 3720 E2* | 4624 A2* | 6602 B1 | 9013 F3 | 9712 B2 | |
| 2014 E1* | 2400 E3* | 2702 A3* | 3173 D2* | 3529 B3 | 3722 B2* | 4653 B2* | 6650 B1 | 9101 D3 | 9713 C3 | |
| 2015 D2 | 2401 E4 | 2703 A3* | 3198 E1 | 3530 B4 | 3723 B3* | 4711 B3* | 6651 C2* | 9104 E2 | 9714 D3 | |
| 2016 D2* | 2402 E3 | 2704 A3* | 3243 D1 | 3531 B4 | 3724 B3* | 4713 B2* | 6658 D2 | 9107 A1 | 9715 D3 | |
| 2017 F2 | 2404 E4* | 2705 A3* | 3245 A2* | 3532 A4 | 3728 B3* | 4715 B3* | 6704 A2* | 9108 E2 | 9716 B3 | |
| 2018 D1* | 2405 E3* | 2706 A2* | 3246 A2* | 3533 A4 | 3729 A2* | 472 | | | | |

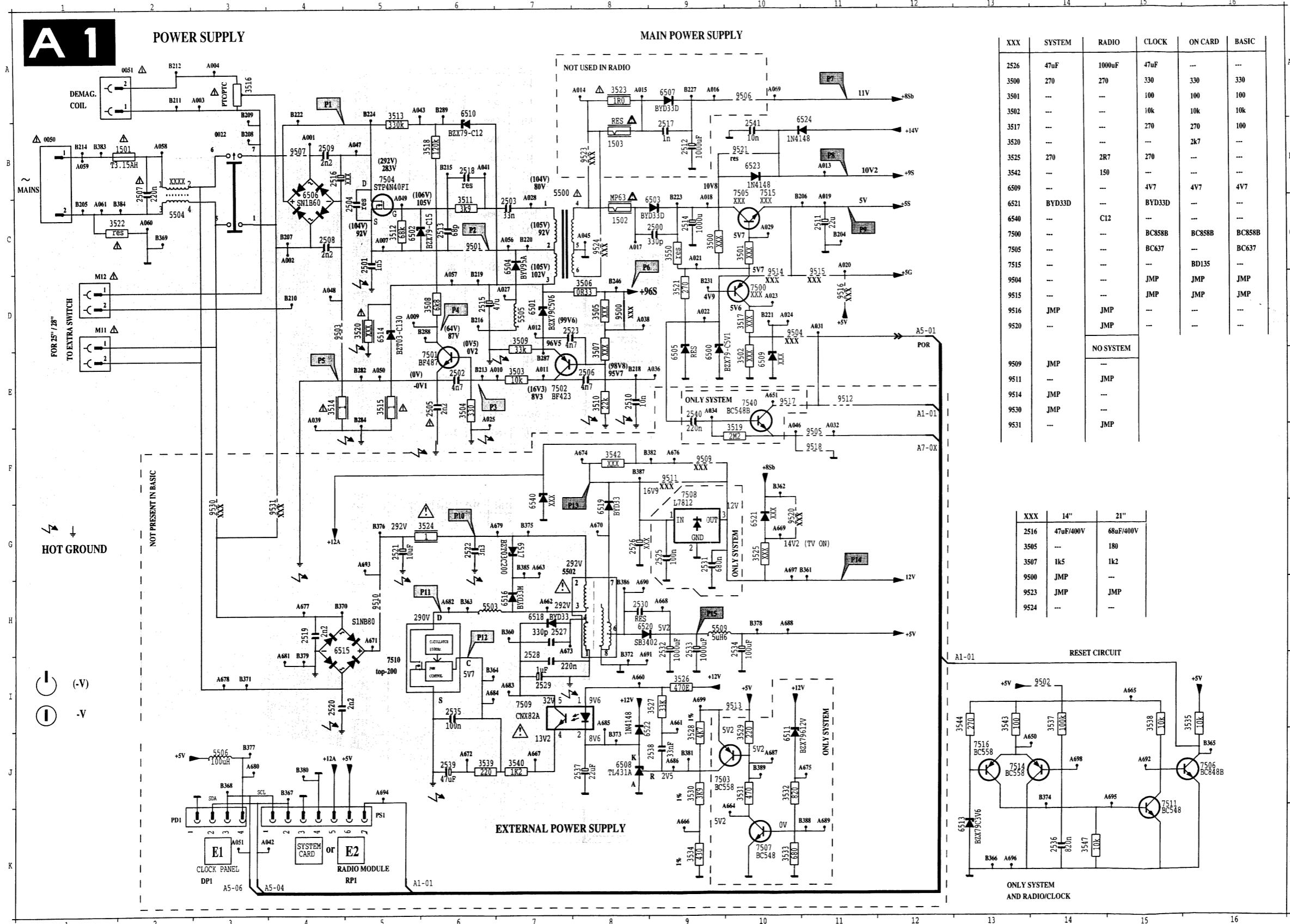
Mono carrier / Hauptplatine / Châssis



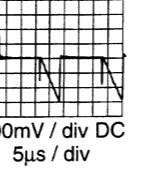
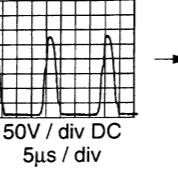
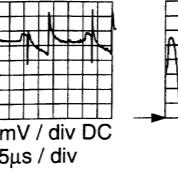
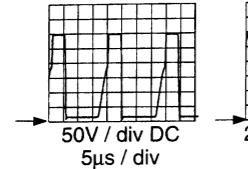
Power supply / Speisung / Alimentation

Chassis A7H.1 9

Power supply / Speisung / Alimentation



P1 284V / DC
P1 292V 0 DC



P6 95V7 / DC
P6 98V8 0 DC
P7 11V DC

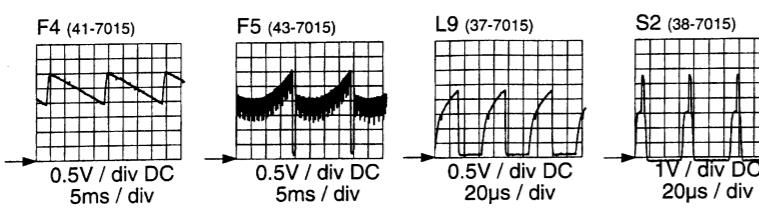
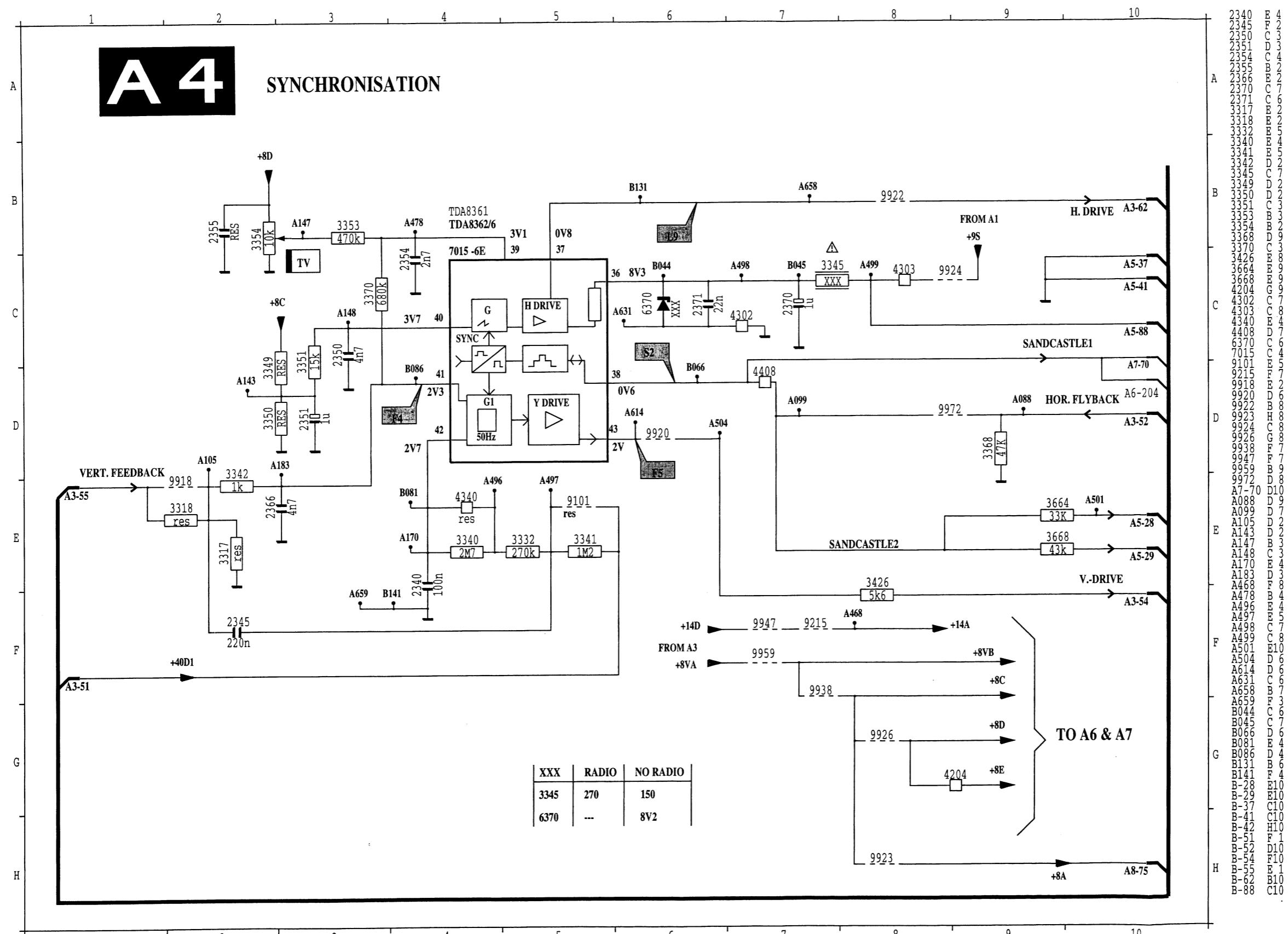
P8 10V2 DC
P9 5V DC
P10 292V DC

P11 (D-7510)
P12 5V7 DC
P13 16V9 DC
P14 12V DC
P15 5V DC

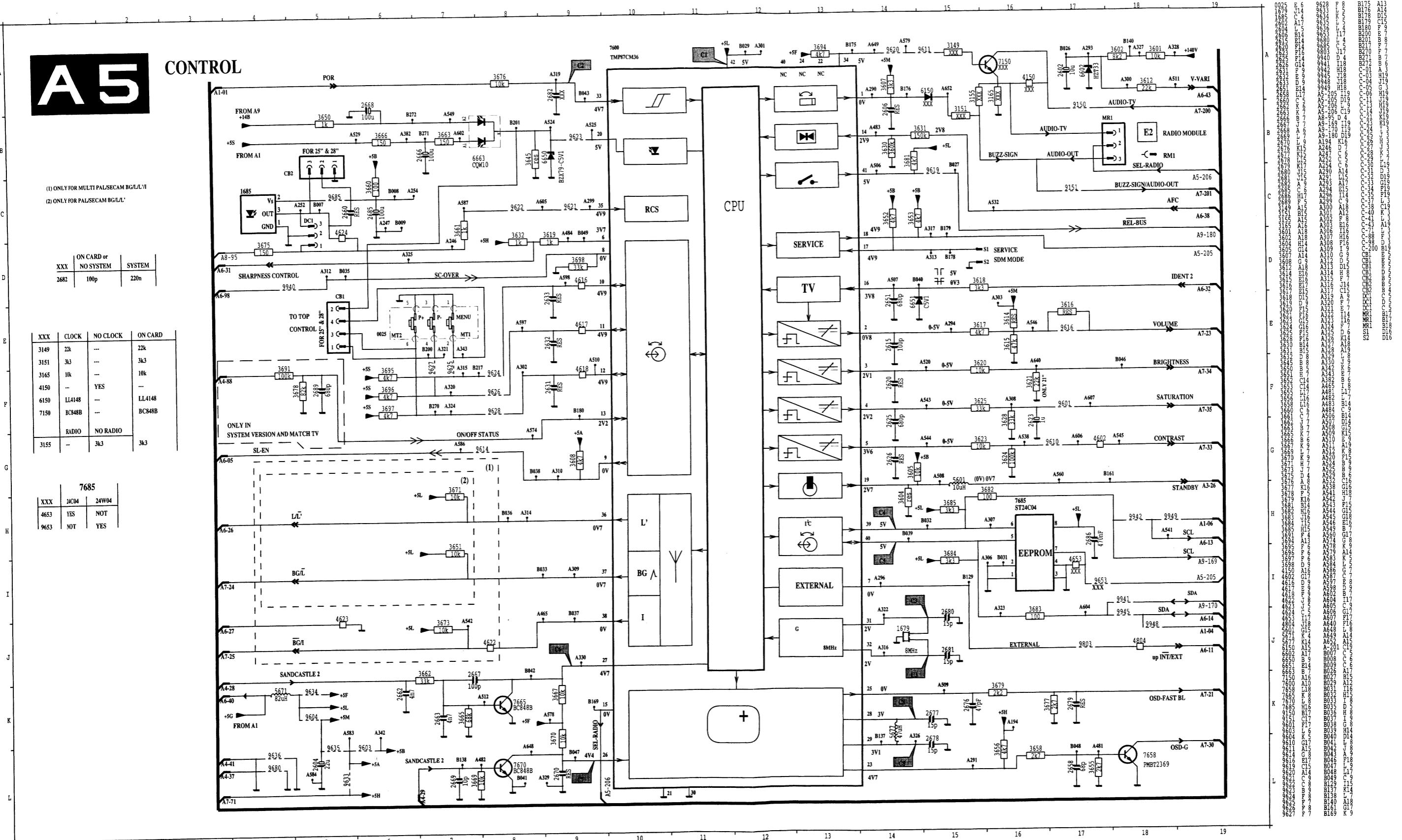
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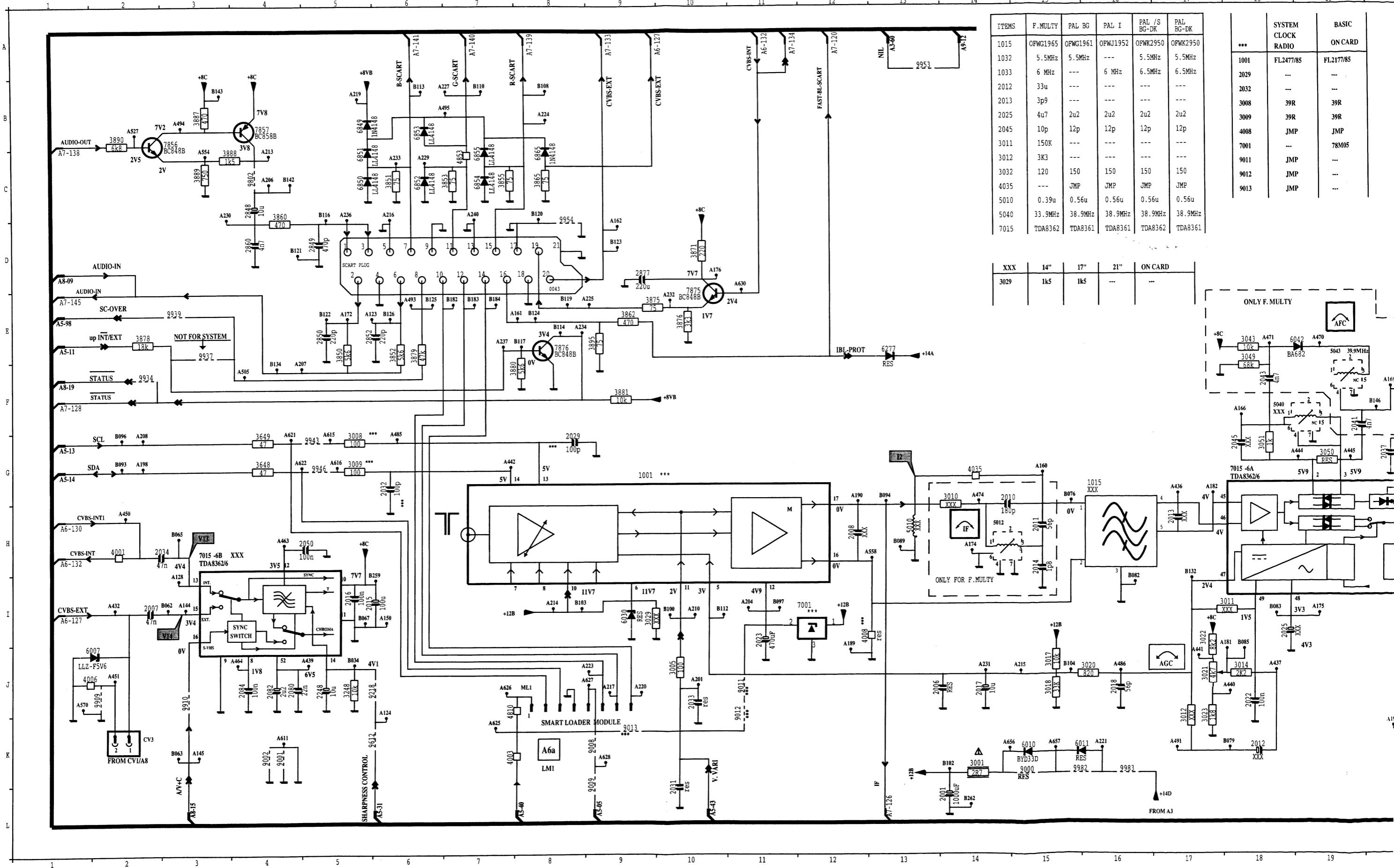
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| XXX | SYSTEM | RADIO | CLOCK | ON CARD | BASIC |
|-----------------------------|-----------|-----------|--------|---------|-------|
| 2526 | 47uF | 1000uF | 47uF | --- | --- |
| 3500 | 270 | 270 | 330 | 330 | |
| 3501 | -- | -- | 100 | 100 | |
| 3502 | -- | -- | 10k | 10k | |
| 3517 | -- | -- | 270 | 270 | 100 |
| 3520 | -- | -- | 2k7 | 2k7 | |
| 3525 | 270 | 2R7 | 270 | --- | |
| 3542 | -- | 150 | --- | --- | |
| 6509 | -- | 4V7 | 4V7 | 4V7 | |
| 6521 | BYD33D | BYD33D | --- | --- | |
| 6540 | -- | C12 | --- | --- | |
| 7500 | -- | BC858B | BC858B | BC858B | |
| 7505 | -- | BC637 | BC637 | BC637 | |
| 7515 | -- | BD135 | BD135 | BD135 | |
| 9504 | -- | JMP | JMP | JMP | |
| 9515 | -- | JMP | JMP | JMP | |
| 9516 | JMP | JMP | -- | -- | |
| 9520 | JMP | JMP | -- | -- | |
| 9509 | JMP | JMP | -- | -- | |
| 9511 | -- | JMP | JMP | JMP | |
| 9514 | JMP | JMP | -- | -- | |
| 9530 | JMP | JMP | -- | -- | |
| 9531 | -- | JMP | JMP | JMP | |
| NO SYSTEM | | | | | |
| 9509 | JMP | JMP | -- | -- | |
| 9511 | -- | JMP | JMP | JMP | |
| 9514 | JMP | JMP | -- | -- | |
| 9530 | JMP | JMP | -- | -- | |
| 9531 | -- | JMP | JMP | JMP | |
| ONLY SYSTEM | | | | | |
| 2516 | 47uF/400V | 68uF/400V | | | |
| 3505 | -- | 180 | | | |
| 3507 | 1k5 | 1k2 | | | |
| 9500 | JMP | -- | | | |
| 9523 | JMP | JMP | | | |
| 9524 | -- | -- | | | |
| ONLY SYSTEM AND RADIO/CLOCK | | | | | |
| 3516 | 47uF/400V | 68uF/400V | | | |
| 3517 | -- | 180 | | | |
| 3526 | 1k5 | 1k2 | | | |
| 3528 | JMP | JMP | | | |
| 3529 | -- | -- | | | |
| 3530 | 1k5 | 1k2 | | | |
| 3531 | JMP | JMP | | | |
| 3532 | -- | -- | | | |
| 3533 | 1k5 | 1k2 | | | |
| 3534 | K 9 | K 9 | | | |
| 3535 | I 5 | I 5 | | | |
| 3536 | J 5 | J 5 | | | |
| 3537 | I 4 | I 4 | | | |
| 3538 | I 2 | I 2 | | | |
| 3539 | I 1 | I 1 | | | |
| 3540 | H 2 | H 2 | | | |
| 3542 | F 8 | F 8 | | | |
| 3543 | G 6 | G 6 | | | |
| 3544 | I 2 | I 2 | | | |
| 3547 | K 4 | K 4 | | | |
| 3550 | C 9 | C 9 | | | |
| 3552 | D 5 | D 5 | | | |
| 3553 | H 7 | H 7 | | | |
| 3554 | J 3 | J 3 | | | |
| 3555 | I 5 | I 5 | | | |
| 3556 | J 3 | J 3 | | | |
| 3557 | I 4 | I 4 | | | |
| 3558 | H 2 | H 2 | | | |
| 3559 | G 7 | G 7 | | | |
| 3560 | I 5 | I 5 | | | |
| 3561 | H 7 | H 7 | | | |
| 3562 | G 8 | G 8 | | | |
| 3563 | H 7 | H 7 | | | |
| 3564 | I 5 | I 5 | | | |
| 3565 | H 7 | H 7 | | | |
| 3566 | I 5 | I 5 | | | |
| 3567 | H 7 | H 7 | | | |
| 3568 | I 5 | I 5 | | | |
| 3569 | H 7 | H 7 | | | |
| 3570 | I 5 | I 5 | | | |
| 3571 | H 7 | H 7 | | | |
| 3572 | I 5 | I 5 | | | |
| 3573 | H 7 | H 7 | | | |
| 3574 | I 5 | I 5 | | | |
| 3575 | H 7 | H 7 | | | |
| 3576 | I 5 | I 5 | | | |
| 3577 | H 7 | H 7 | | | |
| 3578 | I 5 | I 5 | | | |
| 3579 | H 7 | H 7 | | | |
| 3580 | I 5 | I 5 | | | |
| 3581 | H 7 | H 7 | | | |
| 3582 | I 5 | I 5 | | | |
| 3583 | H 7 | H 7 | | | |
| 3584 | I 5 | I 5 | | | |
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| 3586 | I 5 | I 5 | | | |
| 3587 | H 7 | H 7 | | | |
| 3588 | I 5 | I 5 | | | |
| 3589 | H 7 | H 7 | | | |
| 3590 | I 5 | I 5 | | | |
| 3591 | H 7 | H 7 | | | |
| 3592 | I 5 | I 5 | | | |
| 3593 | H 7 | H 7 | | | |
| 3594 | I 5 | I 5 | | | |
| 3595 | H 7 | H 7 | | | |
| 3596 | I 5 | I 5 | | | |
| 3597 | H 7 | H 7 | | | |
| 3598 | I 5 | I 5 | | | |
| 3599 | H 7 | H 7 | | | |
| 3600 | I 5 | I 5 | | | |
| 3601 | H 7 | H 7 | | | |
| 3602 | I 5 | I 5 | | | |
| 3603 | H 7 | H 7 | | | |
| 3604 | I 5 | I 5 | | | |
| 3605 | H 7 | H 7 | | | |
| 3606 | I 5 | I 5 | | | |
| 3607 | H 7 | H 7 | | | |
| 3608 | I 5 | I 5 | | | |
| 3609 | H 7 | H 7 | | | |
| 3610 | I 5 | I 5 | | | |
| 3611 | H 7 | H 7 | | | |
| 3612 | I 5 | I 5 | | | |
| 3613 | H 7 | H 7 | | | |
| 3614 | I 5 | I 5 | | | |
| 3615 | H 7 | H 7 | | | |
| 3616 | I 5 | I 5 | | | |
| 3617 | H 7 | H 7 | | | |
| 3618 | I 5 | I 5 | | | |
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| 3620 | I 5 | I 5 | | | |
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| 3623 | H 7 | H 7 | | | |
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| 3625 | H 7 | H 7 | | | |
| 3626 | I 5 | I 5 | | | |
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| 3628 | I 5 | I 5 | | | |
| 3629 | H 7 | H 7 | | | |
| 3630 | I 5 | I 5 | | | |
| 3631 | H 7 | H 7 | | | |
| 3632 | I 5 | I 5 | | | |
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| 3634 | I 5 | I 5 | | | |
| 3635 | H 7 | H 7 | | | |
| 3636 | I 5 | I 5 | | | |
| 3637 | H 7 | H 7 | | | |
| 3638 | I 5 | I 5 | | | |
| 3639 | H 7 | H 7 | | | |
| 3640 | I 5 | I 5 | | | |
| 3641 | H 7 | H 7 | | | |
| 3642 | I 5 | I 5 | | | |
| 3643 | H 7 | H 7 | | | |
| 3644 | I 5 | I 5 | | | |
| 3645 | H 7 | H 7 | | | |
| 3646 | I 5 | I 5 | | | |
| 3647 | H 7 | H 7 | | | |
| 3648 | I 5 | I 5 | | | |
| 3649 | H 7 | H 7 | | | |
| 3650 | I 5 | I 5 | | | |
| 3651 | H 7 | H 7 | | | |
| 3652 | I 5 | I 5 | | | |
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| 3654 | I 5 | I 5 | | | |
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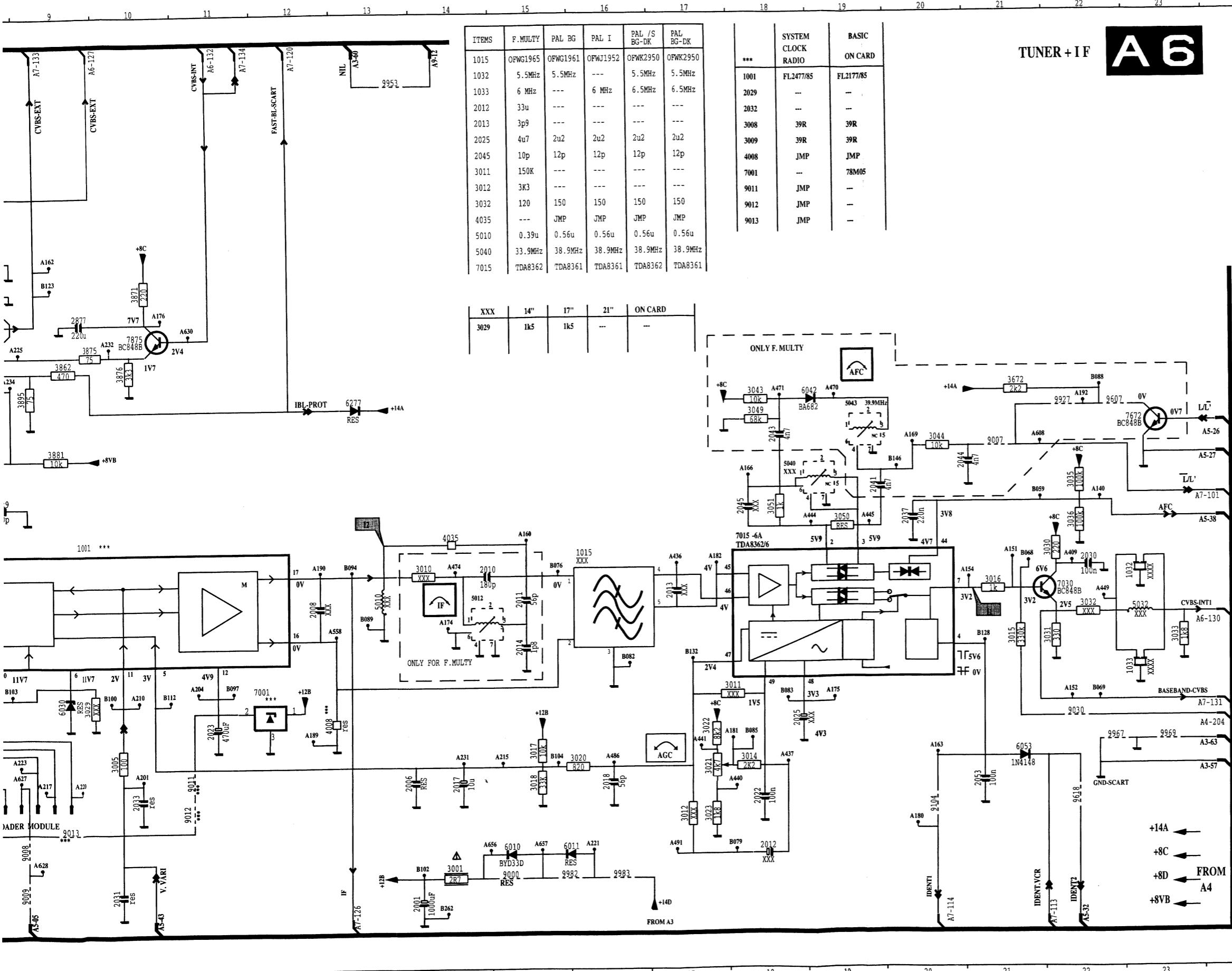
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| H | 2371 |
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| B | 3318 |
| C | 3332 |
| D | 3340 |
| E | 3341 |
| F | 3345 |
| G | 3349 |
| H | 3350 |
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| F | 4302 |
| G | 4340 |
| H | 4408 |
| A | 6370 |
| B | 7015 |
| C | 9101 |
| D | 9215 |
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| H | 9923 |
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| B | 9926 |
| C | 9938 |
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| C | A971 |





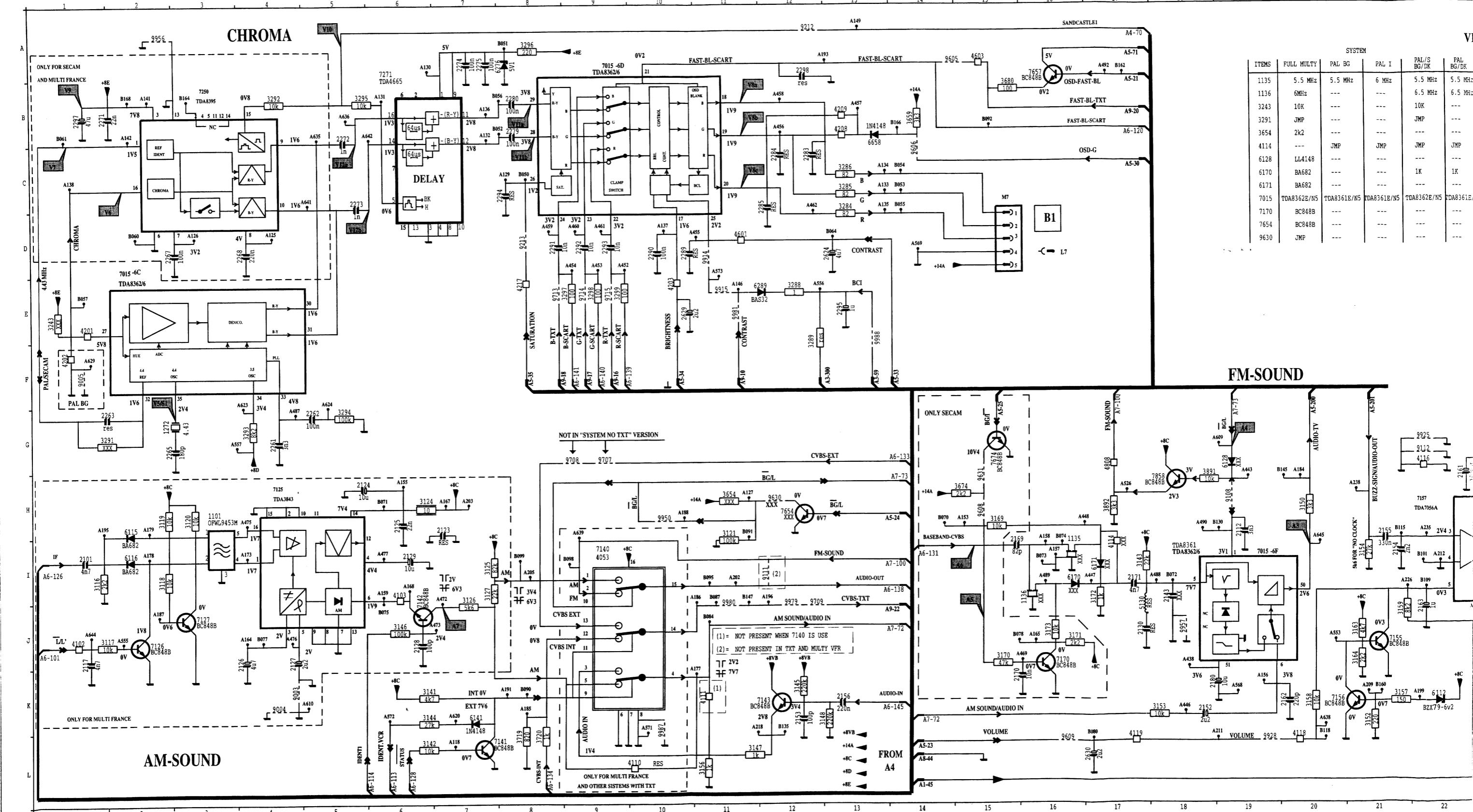
Kanalwähler + ZF + Scart /

Tuner + FI + Connexions

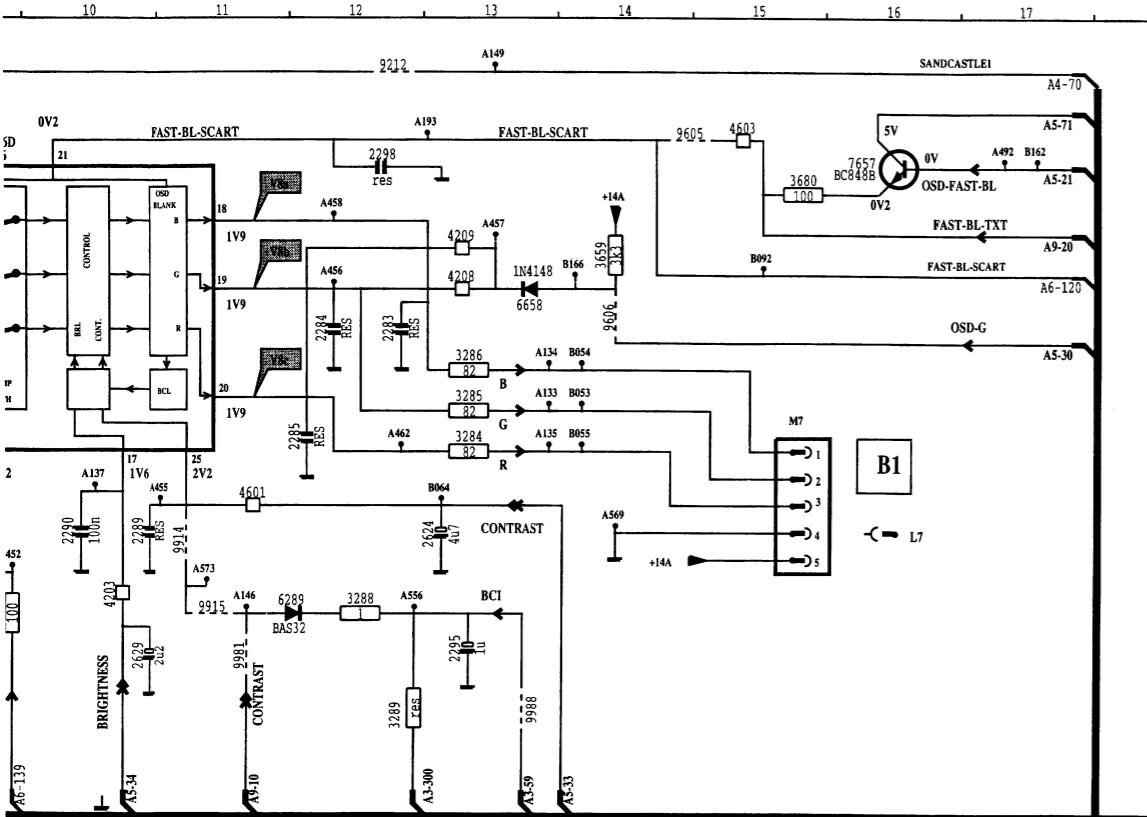


| | |
|---------------|--|
| I1 | |
| I2 Vpp 1.2V | |
| V13 | |
| V14 no signal | |
| = 0V | |

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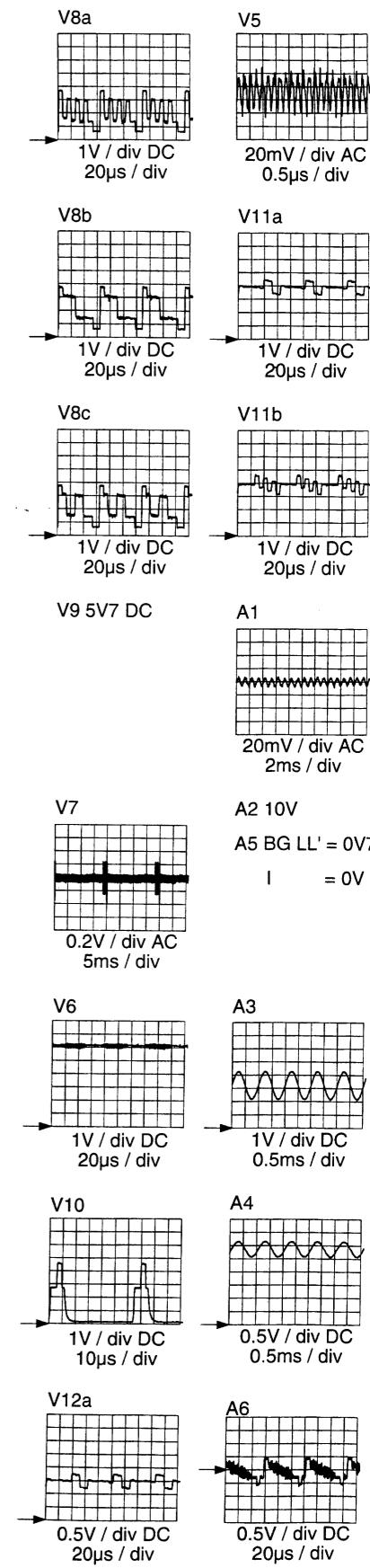
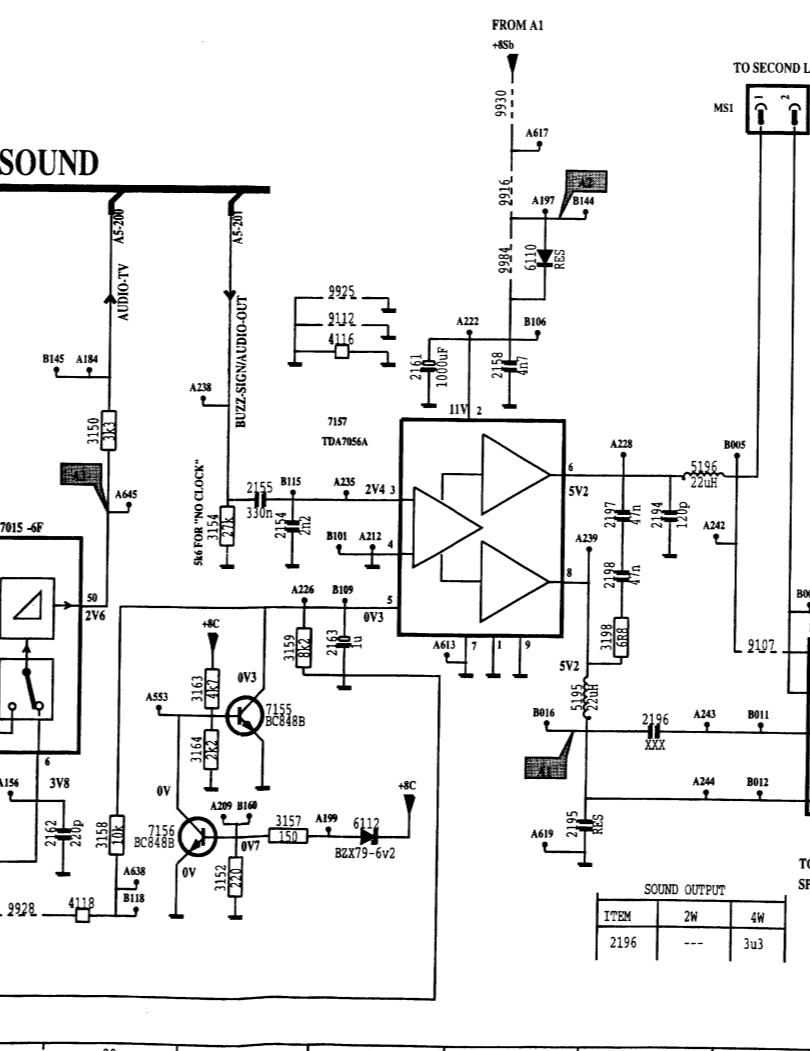
Video (chroma) + Ton /



Video (chroma) + Son

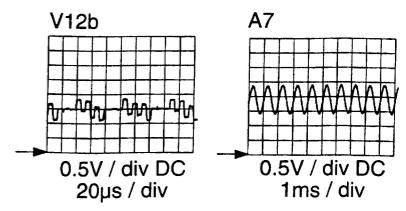
VIDEO + SOUND A 7

| ITEMS | FULL MULTY | PAL BG | PAL I | PAL/S BG/DK | PAL BG/DK |
|-------|-------------|-------------|-------------|-------------|-------------|
| 1135 | 5.5 MHz | 5.5 MHz | 6 MHz | 5.5 MHz | 5.5 MHz |
| 1136 | 6MHz | --- | --- | 6.5 MHz | 6.5 MHz |
| 3243 | 10K | --- | --- | JMP | --- |
| 3291 | JMP | --- | --- | JMP | --- |
| 3654 | 2k2 | --- | --- | --- | --- |
| 4114 | --- | JMP | JMP | JMP | JMP |
| 6128 | LL4148 | --- | --- | --- | --- |
| 6170 | BA682 | --- | --- | 1K | 1K |
| 6171 | BA682 | --- | --- | --- | --- |
| 7015 | TDA8362E/N5 | TDA8361E/N5 | TDA8361B/N5 | TDA8362E/N5 | TDA8361E/N5 |
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| 7654 | BC848B | --- | --- | --- | --- |
| 9630 | JMP | --- | --- | --- | --- |



→ = 0V

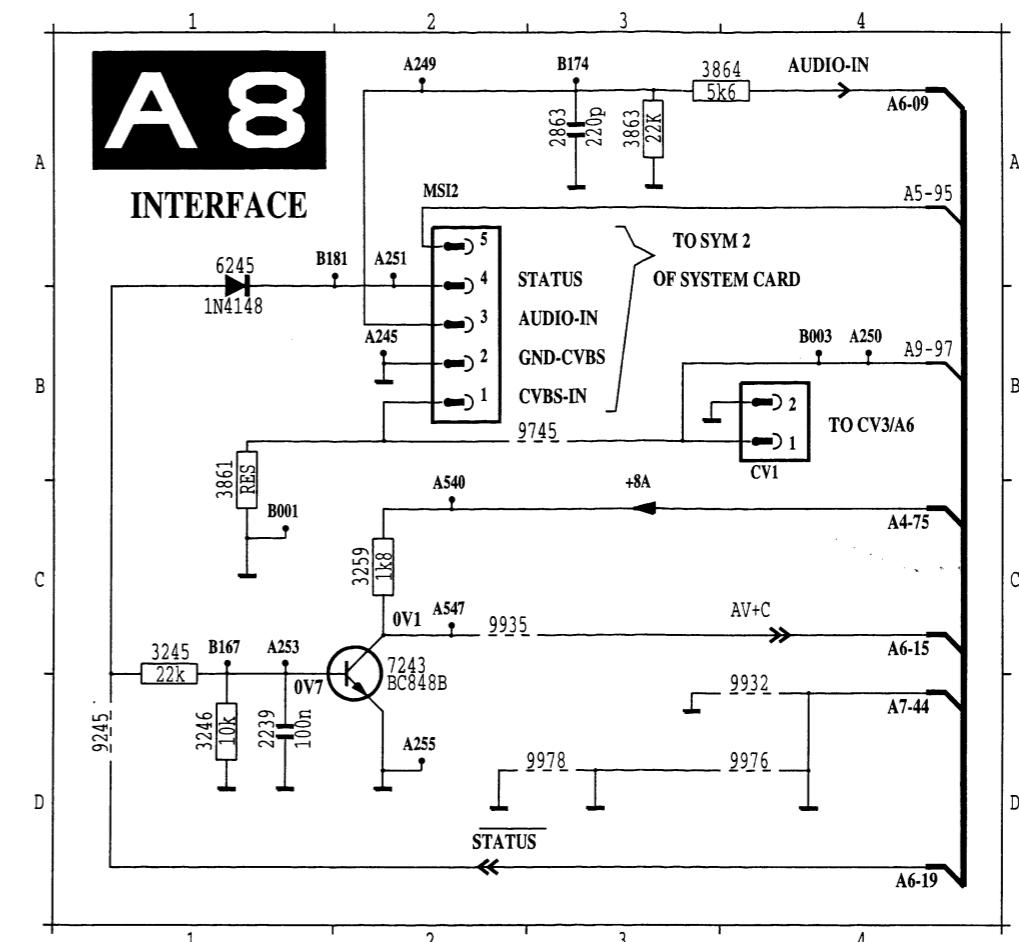
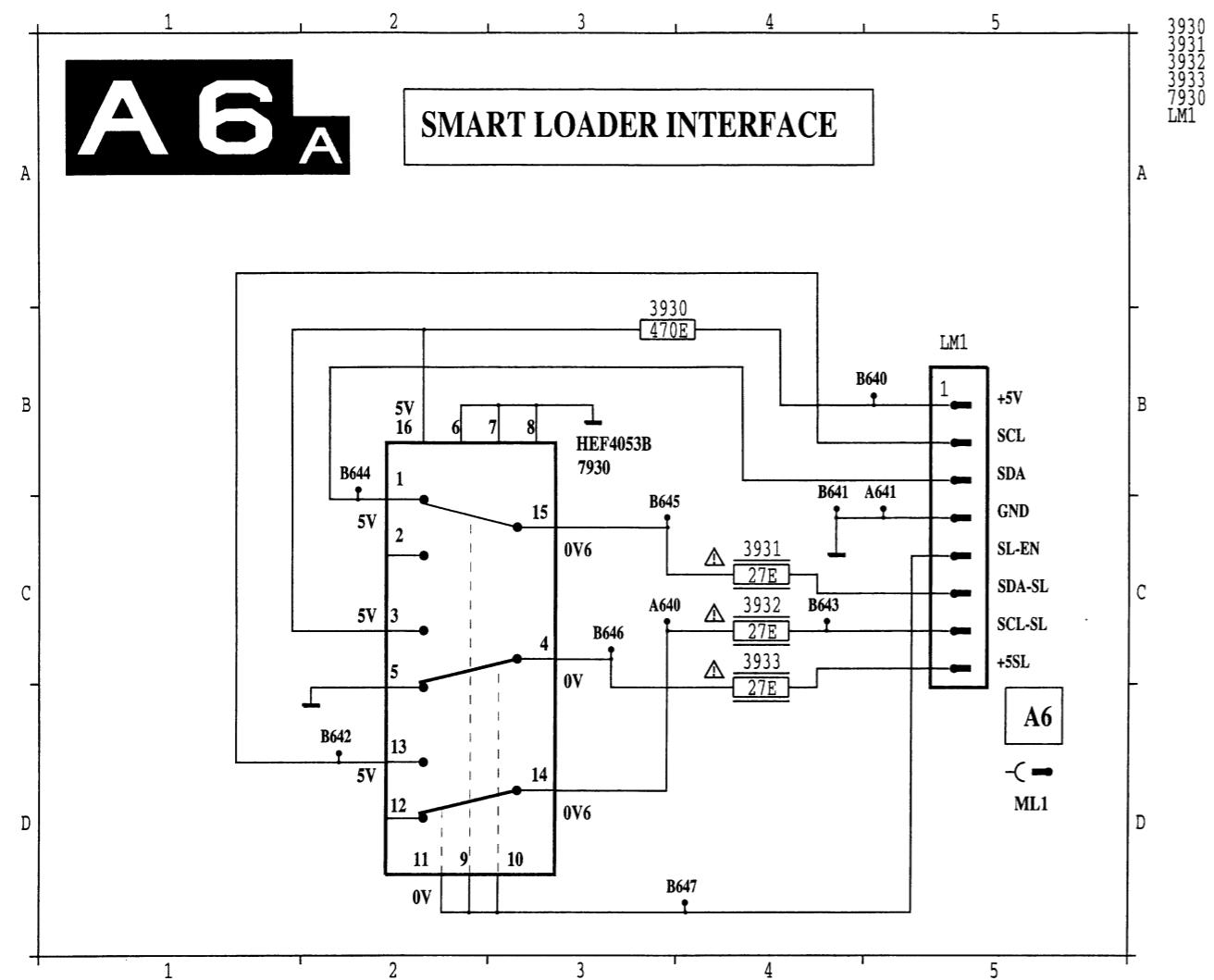
A7.1-A7.cdr
131197



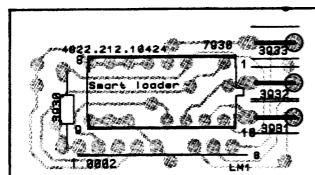
Smart loader interface / Smart lader /
Chargeur à mémoire

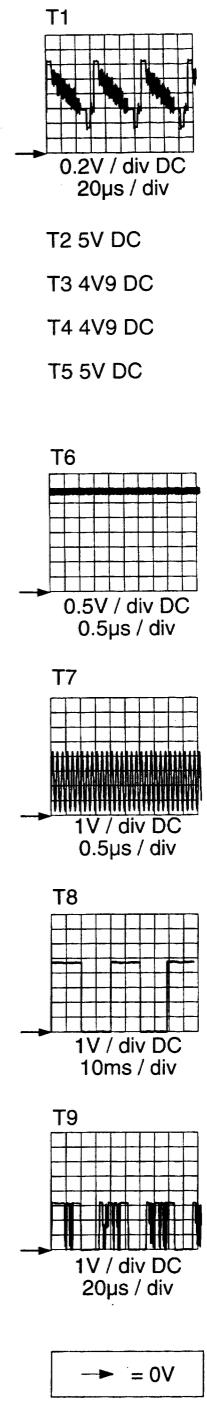
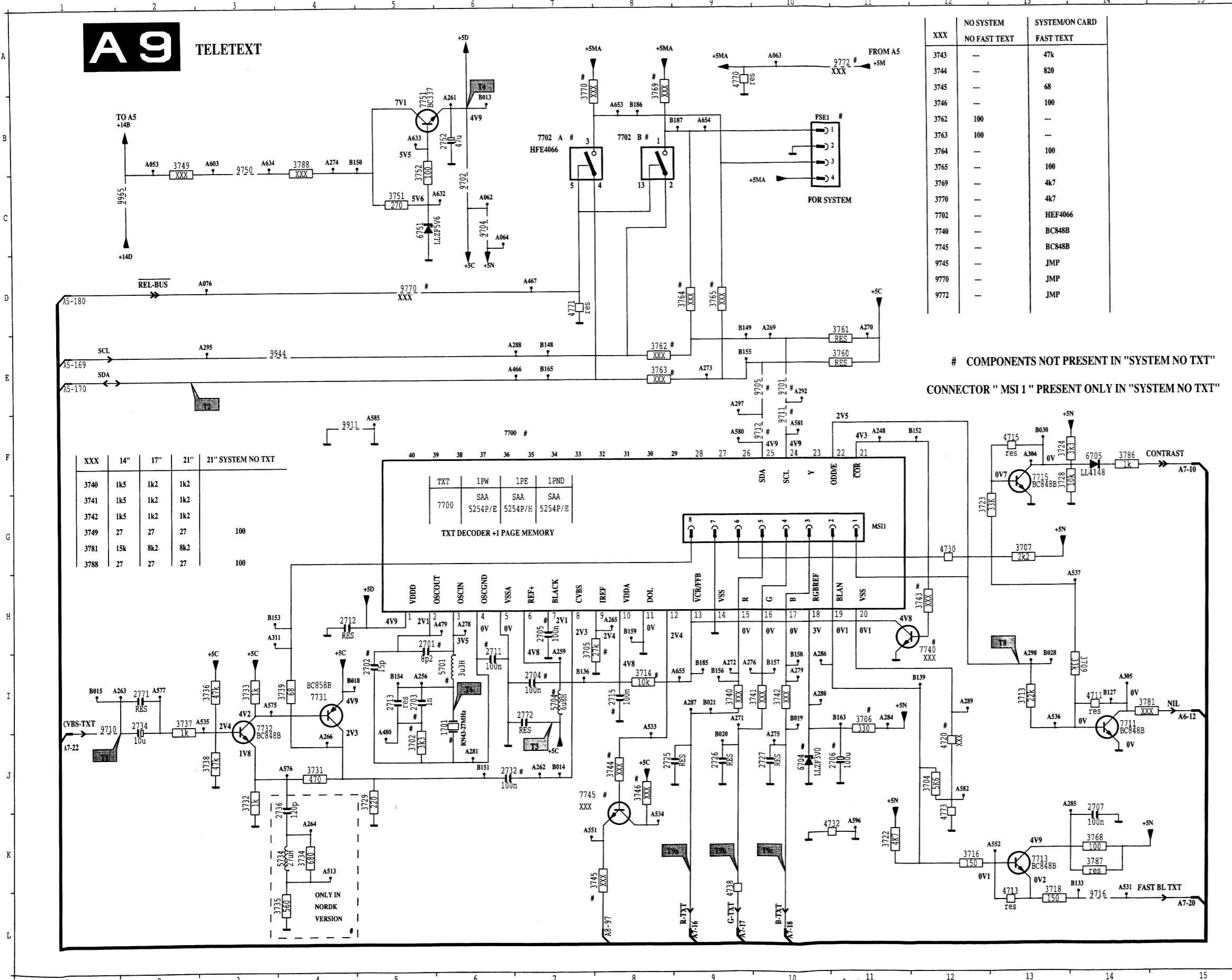
Chassis A7H.1 15

Interface / Interface / SVSH verbindung



Smart loader

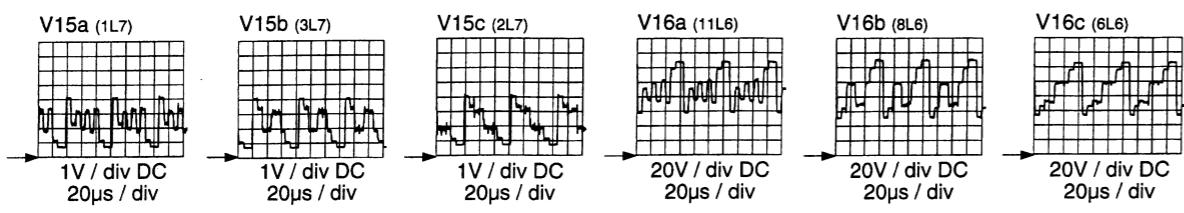
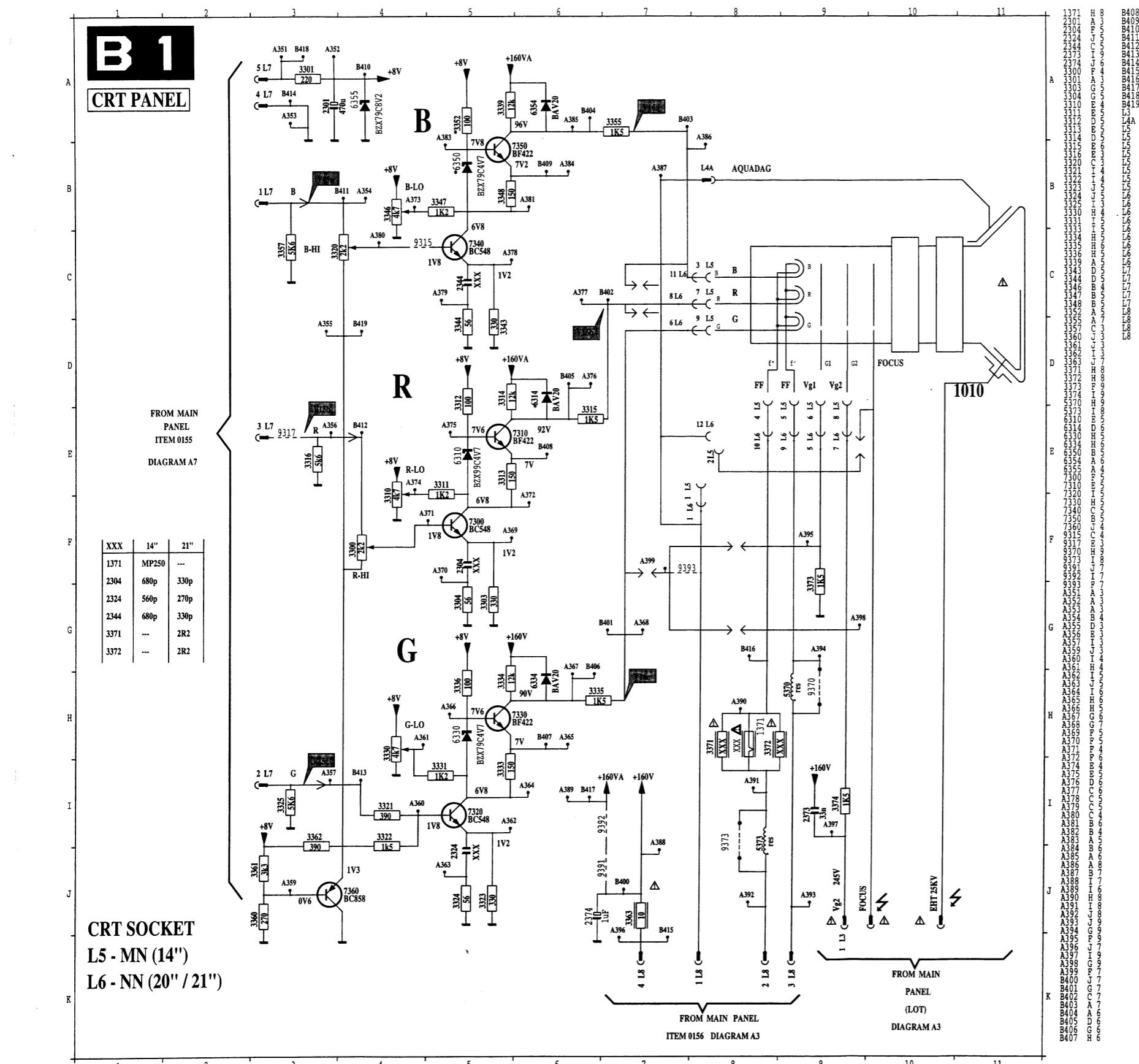




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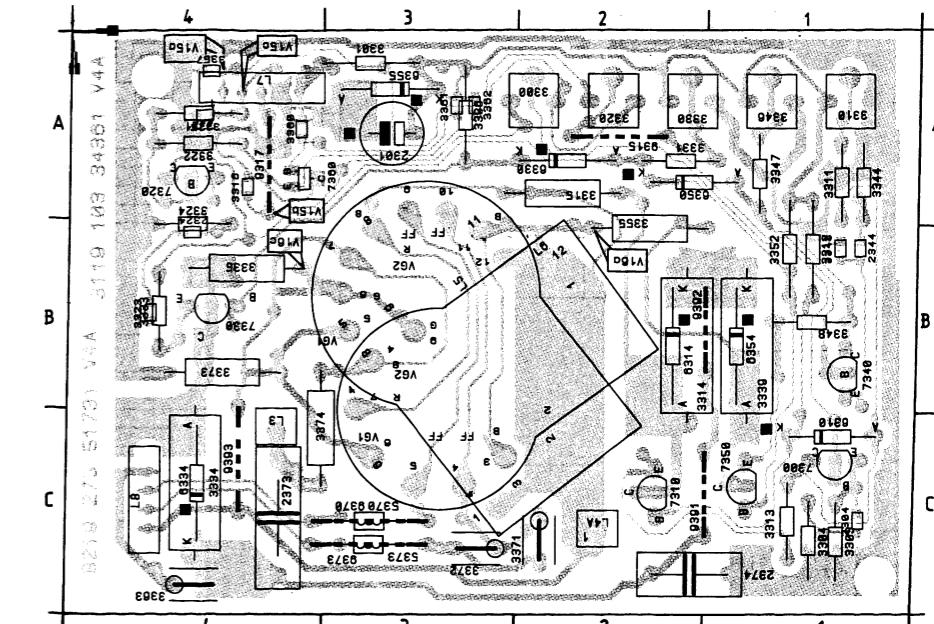
CRT / Bildröhren Platte / TRC



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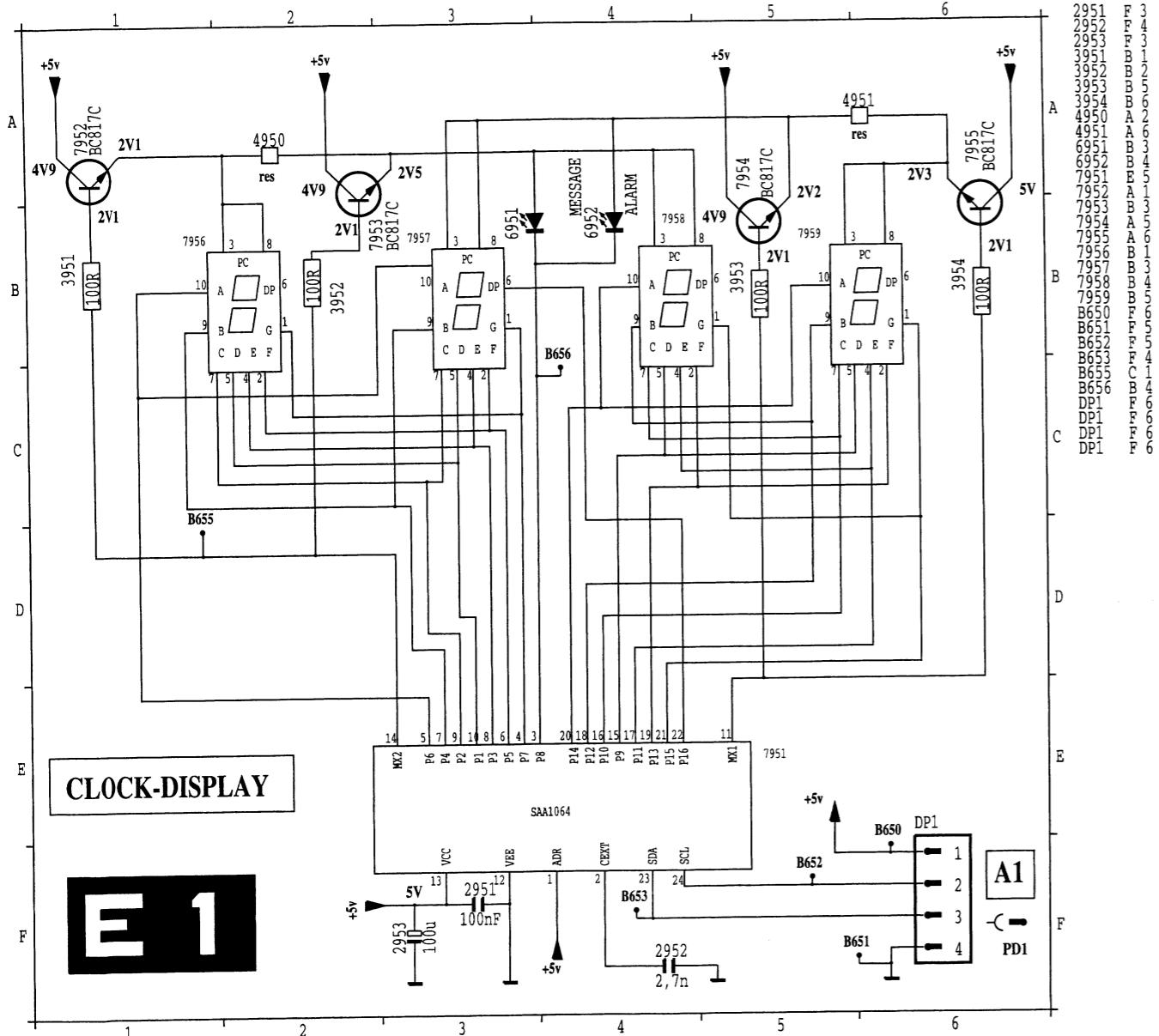
A7H.1_B1.cdr
131197

| | | | | | | | | | | | | | |
|------|-----|------|-----|------|-----|------|-----|------|----|------|-----|------|-------------------|
| 2301 | A3 | 3311 | A1 | 3325 | A4* | 3348 | B1 | 3374 | C3 | 7310 | C1 | 9392 | B1 |
| 2304 | C1* | 3312 | B1 | 3330 | A1 | 3352 | B1 | 5370 | C3 | 7320 | A4 | 9393 | C4 |
| 2324 | B4* | 3313 | C1 | 3331 | A1 | 3355 | B7 | 5373 | C3 | 7330 | B4 | | |
| 2344 | B1* | 3314 | B1 | 3333 | B4 | 3357 | A4* | 6310 | C1 | 7340 | B1 | L3 | C3 |
| 2373 | C3 | 3315 | A2 | 3334 | C4 | 3360 | A3* | 6314 | B1 | 7350 | C1 | L4A | C2 |
| 2374 | C1 | 3316 | A4* | 3335 | B4 | 3361 | A2* | 6330 | A2 | 7360 | A3* | L5 | C3 |
| 3300 | A2 | 3320 | A2 | 3336 | A2 | 3362 | A2* | 6334 | C4 | 9315 | A2 | L6 | B2 |
| 3301 | A3 | 3321 | A4 | 3339 | B1 | 3363 | C4 | 6350 | A1 | 9317 | A3 | L7 | A4 |
| 3303 | C1 | 3322 | A4 | 3343 | B1* | 3371 | C2 | 6354 | B1 | 9370 | C3 | L8 | C4 |
| 3304 | C1 | 3323 | B4* | 3346 | A1 | 3372 | C2 | 6355 | A3 | 9373 | C3 | | |
| 3310 | A1 | 3324 | B4 | 3347 | A1 | 3373 | B4 | 7300 | C1 | 9391 | C1 | | "*=Chip component |

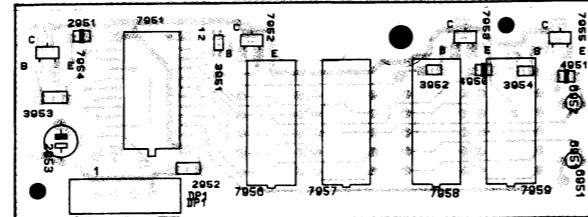
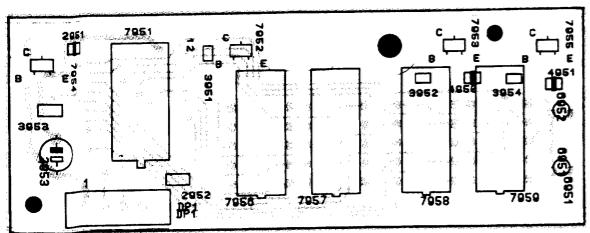


Clock-display / Uhr-Platte / Platine d'horloge

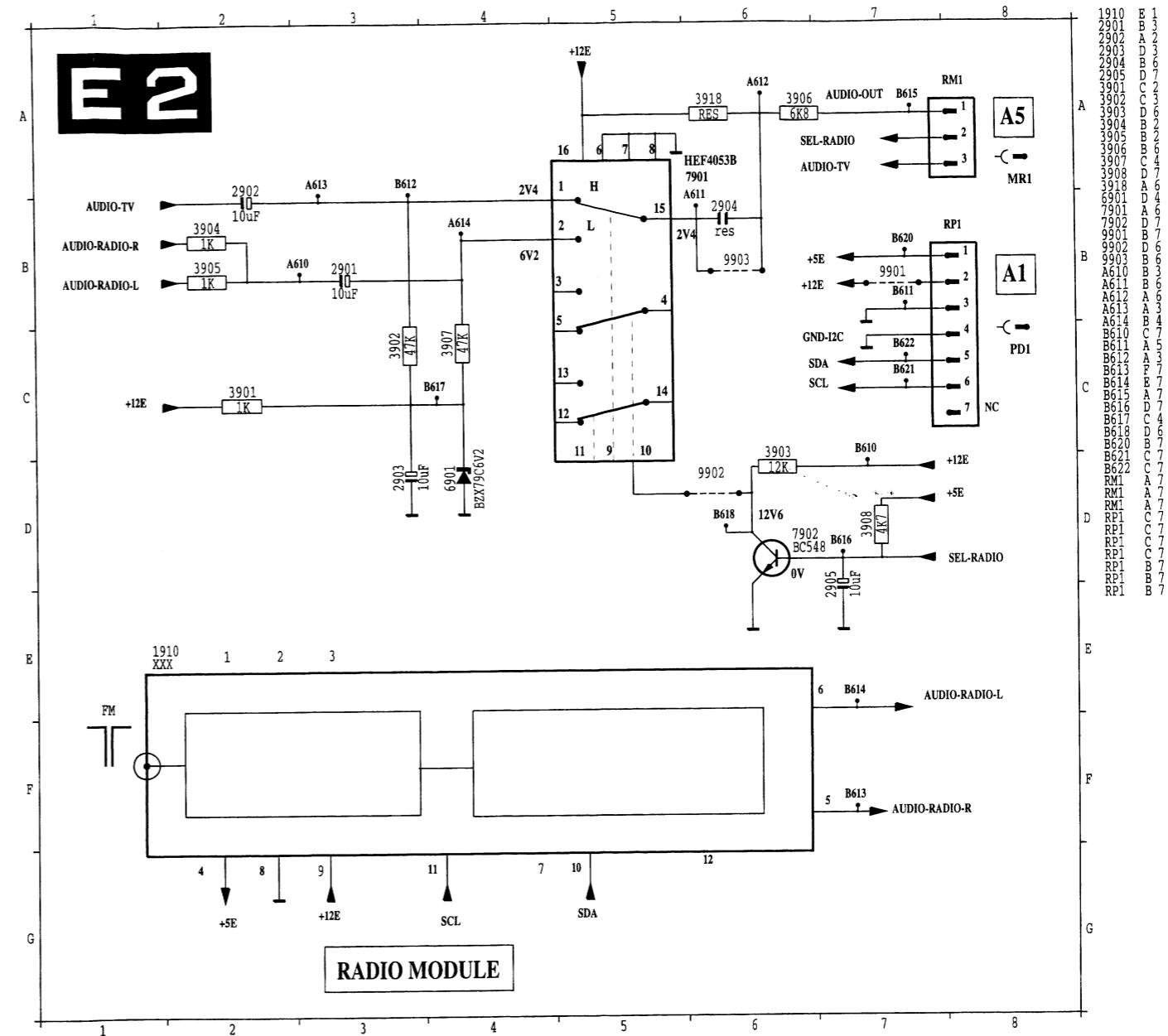
Chassis A7H.1 18



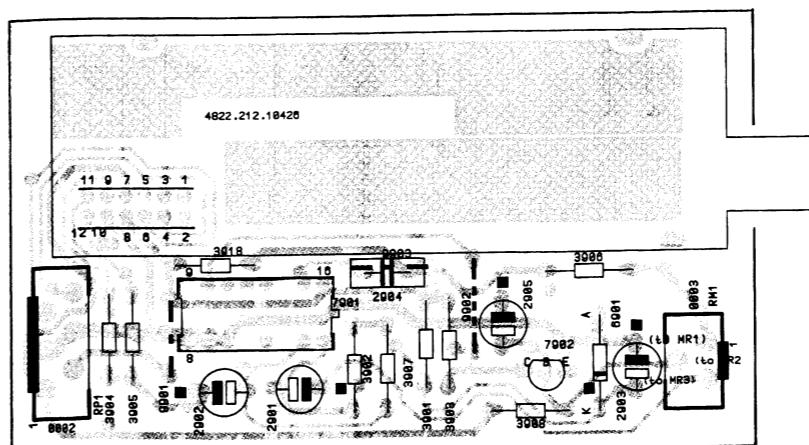
Clock panel



Radio-module / Radiomodul / Module de radio



Radio module



8. Electrical adjustments

1. Adjustments on the main panel (Fig. 8.1)

1.1 Horizontal centring

Is adjusted with potentiometer R3354.

1.2 Picture height

Is adjusted with potentiometer R3407.

1.3 Focusing

Is adjusted with the focusing potentiometer in the line output transformer.

1.4 IF filter (only for sets with SECAM LL' reception possibility)

Connect a signal generator (e.g. PM5326) via a capacitor of 5p6 to pin 17 of the tuner and adjust the frequency for 40.4 MHz.

Connect an oscilloscope to pin 1 of filter 1015.

Switch on the set and select system Europe (BG/L is "low" for BGIDK reception).

Adjust L5012 for a minimum amplitude.

1.5 AFC

a. For sets with SECAM LL' reception possibility:

Connect a signal generator (e.g. PM5326) as indicated in point 1.6. Connect a voltmeter to pin 44 of IC7015/6A. Adjust the frequency for 33.9 MHz and select system France (L/L' is "high" for L' reception). Adjust L5040 for 3V5 (DC).

Next adjust the frequency for 38.9 MHz and select system Europe (L/L' is "low" for BGILDK reception). Adjust L5043 for 3V5 (DC).

b. For sets without SECAM LL' reception possibility:

Connect a signal generator (e.g. PM5326) as indicated above and adjust the frequency for 38.9 MHz (for PAL I at 39.5 MHz). Connect a voltmeter to pin 44 of IC7015/6A. Adjust L5040 for 3V5 (DC).

1.6 RF AGC

If the picture of a strong local transmitter is reproduced distorted, adjust potentiometer R3021 until the picture is undistorted.

Or: Connect a pattern generator (e.g. PM5518) to the aerial input with RF signal amplitude = 1 mV.

Connect a multimeter (DC) at pin 5 of tuner.

Adjust R3021 so that voltage at pin 5 of tuner is 7V5 ± 0V5 (DC).

2. Adjustments on the CRT panel (Fig. 8.1)

2.1 Vg2 cut-off points of picture tube

Apply a pattern generator (e.g. PM5518) and set it to a white raster pattern.

Adjust contrast and Vg2 at minimum (Vg2 with potentiometer in line output transformer to the left).

Adjust brightness until the DC voltage across potentiometer 3320 is 0V.

Adjust R3346 (B), R3330 (G) and R3310 (R) for a level of 115V on the collectors of transistors 7350, 7310 and 7330.

Adjust Vg2 potentiometer until the gun that first emits light is just no longer visible. Adjust the two other guns with the respective controls (3346, 3330 or 3310 or for until just no light will be visible.

2.2 Grey scale (white D)

Apply a test pattern signal and adjust the set for normal operation. Allow the set to warm up for about 10 minutes.

Adjust R3300 and R3320 (R3263 and R3273 for 20") until the desired grey scale has been obtained.

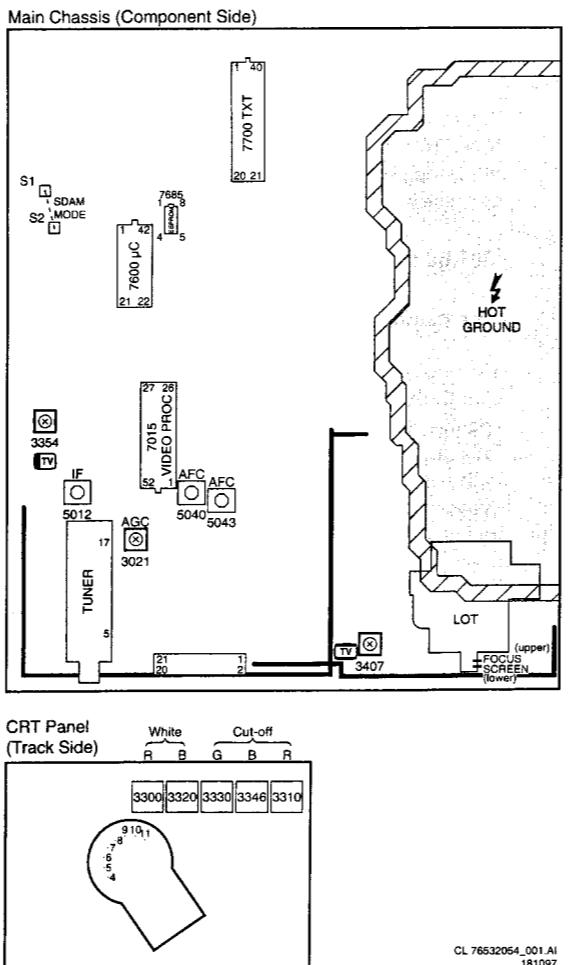


Fig. 8.1

9. Circuit description

For the description of the audio and video processing circuits see the description in the AA5 AA manual.

For the description of the clock panel (Diagram E1), the radio module (Diagram E2) the TXT part (Diagram A9) and the smart loader panel (Diagram A6a), see AA5H.1 AA Chassis manual.

1. Description of the power supply and the deflection part

In the A7H.1 AA chassis all power circuits are mounted on the main carrier panel.

The power supply can be divided in 2 parts:

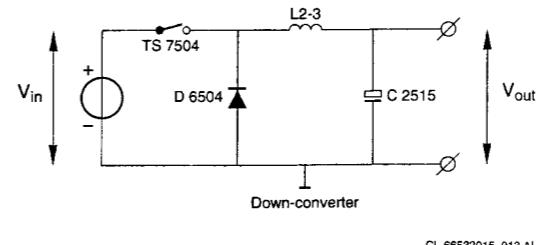
- External power supply (not switched off by power switch).
- Main power supply (switched off by power switch).
- External power supply (with transformer item 5502). This power supply is equal to the switched mode power supply as already introduced in the AA5H.1 chassis. Supply functions of the "Extra power supply" in AA5H.1 chassis are in A7H.1 taken over by the External power supply.
- Main power supply (with transformer item 5500) and deflection.

This power supply and deflection are the same ones as used in L6.1 and L6.2 chassis.

Warning: For this power supply is valid that the +96V supply for the line output stage is not mains isolated. And therefore the line output stage and horizontal deflection coil connections on the CRT are also not mains isolated.

Remark: With this supply single isolated picture tubes can be used.

For a description of the main power supply and belonging deflection circuit see below.



1.1 Principle of the down-converter (Fig 9.1)

The main power-supply is a self-oscillating down converter with an auxiliary winding to help the FET to switch.

When switch TS7504 is closed, the voltage on L2-3 is V_{out} . During this time, energy is stored in the coil and energy is delivered to the load. When switch TS7504 opens, the energy stored in the coil will be stored in the output capacitor (C2515). This is due to the fact that the current through the coil has to decrease linear. When the switch is open the current is floating through D6504, L2-3 and C2515. By controlling the duty-cycle of the switch, the output voltage can be regulated.

1.2 Start-up (see diagram A1)

When the switch TS7504 is closed, the input voltage is placed over winding 2-3 of transformer 5500, which acts as coil L2-3 in Fig 8.1. Via resistors R3513, R3518 and R3512 the switch is turned on for the first time. Zener diode D6502 prevents that the Ugs of the FET becomes higher than 15V. When the input voltage is on winding 1-2, via winding 1-2 the correct switching voltage is obtained. The DC-part of this voltage is blocked by capacitor C2503.

Diode D6510 acts as a protection in start-up and in short-circuit situations. During start-up the output capacitor C2515 is empty. It takes a relative long time to charge the gate to a voltage high enough to switch on the FET. This is due to the fact the diode D6510 is conducting. When this diode is conducting, the current that would normally flow into the gate of the fet to switch on the FET, is now flowing into C2515. In this way a smooth start-up is guaranteed.

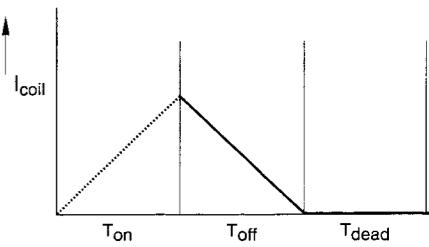


Fig. 9.2

1.3 General way of working (Fig 9.2)

The state of the power-supply can be divided into three areas (see Fig. 9.2):

- **T-on;** In this state the FET is conducting and energy is stored in the coil and in the output capacitor.
- **T-off;** In this state the fet is non conducting and the energy stored in the coil is fed to the output capacitor.
- **Tdead;** Fet is out of conduction and there is no energy in the coil.

CL 66532015_014.AI
260296

CL 66532015_013.AI
150296

Circuit description

T-on; In the T-on state, switch TS7504 is switched on. When the switch is on the voltage over resistors R3514-R3515 is a direct measure for the current through winding 2-3. This is a negative voltage. When this voltage becomes below a certain level, TS7501 starts conducting and will switch off the fet. In this way it is prevented that the coil can go into saturation. This could be the case when the output voltage is very low. (long on time of the FET). When the output-voltage becomes too high during T-on the FET will be switched off. (see Output-voltage regulation)

T-off; Due to the stored energy a current will start to flow through D6504, C2515 and winding 2-3. Due to the fact that the current is flowing through this circuit, a voltage with reverse polarity is on winding 1-2. In this way the fet remains off until the current through winding 2-3 reaches zero. Now a new cycle will start. The fet will be switched on and all starts over again.

T-dead; If the output voltage is too high (for example in a low load situation) the FET remains off till the output-voltage is not to high anymore.

1.4 Output voltage regulation

This is done by the circuit D6501, R3509, TS7502, R3505, R3507, R3510. Transistor TS7502 can only conduct when the voltage on the base is 0V7 lower than the voltage the voltage on the emitter. This means that the voltage drop over resistors R3505 and R3507 should be 5V6 (zenerdiode) + 0V7(base-emitter). This is reached when the output voltage exceeds the 100V. Now transistor TS7502 starts conducting, which brings transistor TS7501 in conduction. As a consequence the gate voltage of the fet becomes very low and the fet stops conducting. As long as the output voltage is too high the fet stays out of conduction.

2. Protections

2.1 Overvoltage protection

A disadvantage of a down converter is that if the switch becomes a short-circuit, the output voltage will increase to the input voltage. This could damage circuits. In this power-supply there is a protection to prevent this. If the output voltage becomes higher than 130V, zener diode D6514 starts to conduct. The Vin will be short circuited. This will blown the main fuse 1501 and protect in this way all the other circuits.

2.2 Short-circuit and start-up protection

The short-circuit protection works the same as the start-up protection. If the output-voltage is very low in case of a start-up or a short-circuit condition, The gate will be charged very slowly due to the fact that zenerdiode D6510 is conducting. So the current is not only charging the gate but is also flowing into the output capacitor. In this way it takes a few milliseconds to switch on the fet. Diode D6510 takes also care that the fet never remains in his power consuming (linear) area. If the output voltage is very low, it also takes a large time before the current through winding 2-3 reaches zero. The power supplied to the circuit is in this way very low and protects in this way the circuit.

2.3 Other output voltages

The output voltages +8Sb, +14V +9S and +5S and +5G are made by winding 5-6. During the time that the FET TS7504 is not conducting, energy is transformed to this winding (flyback principle) and the voltages mentioned above are created. From the +9S, the +5S voltage is derived. This voltage is stabilized by transistors TS7505, TS7500 and zenerdiode D6500. D6500 is the reference voltage and TS7505 is delivering the current. When zenerdiode D6500 starts conducting, the voltage over resistor R3502 becomes high and a POR signal is created.

3. Degaussing

R3516 is a dual PTC (2 PTC's in one housing). After switching "on" the set, the PTC is cold, so low ohmic. This makes the degaussing current high. After degaussing the PTC is heated, so high ohmic. This makes the degaussing current low. After degaussing the PTC remains heated by the mains.

4. Line-circuit (Diagram A3)

The primary side of the line-circuit and the deflection coil are connected to the hot earth. The driver-circuit contains an opto-coupler to create isolation between the low-signal parts and the mains. The optocoupler is driven by pin 37 of IC7015-6E via transistor TS7103.

When TS7103 is not conducting, (the LED of the opto-coupler is also out of conduction) TS7421 is also not conducting. In this way TS7422 will conduct and the 96V is placed over winding 2-1 of the LOT. A voltage over winding 2-1 of the LOT will cause a voltage over the windings 8-10, 6-10 and 9-10. Now energy will be transformed from the primary to the secondary-side and charge capacitors C2424 and C2425.

Circuit description

C2430 will be charged to the difference of the +40D and +14D (=26V) when TS7422 is conducting. When TS7422 stops conducting, the voltage of pin 8 of the LOT will become very negative. This forces C2430 to be charged to 26V plus the absolute value of pin 8. When TS7422 starts conducting again the voltage of pin 8 of the LOT will increase and so the voltage on the anode of D6422. In this way the 160V is created. This means that during the off-time of TS7422, C2430 is charged and during the on-time of TS7422, the energy in C2430 is given to C2426.

When transistor TS7103 conducts, the LED of the opto-coupler will be activated. This causes the transistor of the opto-coupler to conduct, which drives TS7421 in conduction. This brings TS7422 out of conduction. Due to this construction, this circuit is protected against missing line-drive pulses. When a line-drive pulse is missed, the line-transistor stays out of conduction, due to the fact that the diode of the opto-coupler is forced into conduction by TS7103. In this way nothing can be damaged when there is no line-drive. Winding 4-3 is an extra winding to help TS7422 to switch.

On the secondary-side of the LOT there is a circuit consisting of TS7423, R3422, R3433, R3434, C2431 and C2432. This circuit creates a pulse when TS7422 switches off. This pulse indicates that horizontal flyback takes place. This information is fed to IC7015-6E to blank the picture.

4.1 Stand-by

The standby signal from the mC is low in case of stand-by. Now TS7103 is brought into conduction by R3112. As mentioned before this will switch off the line-output stage completely.

5. Deflection

5.1 Horizontal deflection

The voltage over capacitor C2422 is the same as the voltage over C2515 (96V, see Diagram A1). When TS7422 is conducting this voltage is placed over the horizontal deflection coil. This causes a linear increasing current through this coil. In this way deflection is created. When TS7422 switches off flyback takes place and it starts all over again. L5424 is used for linearity correction.

5.2 Vertical deflection

Vertical deflection is based on a balance amplifier. Or TS7401 or TS7402 is conducting. This depends on the signal V-drive. If V-drive is high TS7401 conducts and the voltage of C2401 is placed over the deflection coil. Now the picture is written. When V-drive is low, TS7402 conducts and the +40V supply voltage minus the voltage over C2401 is placed over the deflection coil. Flyback takes now place. In this way deflection is generated.

R3407 is used to adjust the vertical shift. With this resistor the level of the signal VFB is adjusted. R3402 and C2404 are used to damp oscillation of the deflection coil with his parasitic capacitance. The signal NIL from the mC is used to create a non-interlaced mode. This is done by creating a small DC current through the deflection coil.

PHILIPS Hotel TV

This product has been especially designed by Philips for institutional applications. These instruction for use are a quick reference for installers. A complete instruction for use is also available. For more information ask the nearest Philips branch office.

TV INSTALLATION

The installation requires the remote control RC 8611.

Place the TV on a solid base.

Leave at least 5 cm around each side of the TV for ventilation.

To prevent any faults and unsafe situations, do not place any objects on top of the sets.

The TV can only operate at a mains voltage of 220/240 V~, 50 Hz.

- Select the last TV channel available by pressing TV — or +.
- Press the □/P button on the local keyboard than press the □— button on the remote control for more than 4 seconds.
- ▷ Installation menu appears.
Use the cursor up and down to navigate into the menu lines. Use the cursor left and right to select the menu options. Use the digit button to insert numbers.

MENU

• Language.

To select the menu and the On Screen Display language: [ENGLISH - FRANCAIS - DEUTSCH].

• Configuration.

Attention : The configuration of the TV is set by Philips, changing the configuration may change the availability of the menu options and the featuring of the TV.

TV system: To choose the TV system [SINGLE - UHF - MULTI F].

Teletext: To enable the teletext [YES - NO].

Clock: To enable the clock [YES - NO].

Radio: To select the radio type [INT (internal) - EXT (external) - NONE].

Interface system: To enable the interface of the system [YES - NO].

• Number of programs

TV: To assign the max. number of TV programs [1-99].

INFO: To assign the max. number of info programs [1-99].

RADIO: To assign the max. number of radio programs [1-99].

Note: Radio available only if Configuration-Radio set to INT or EXT.

PAY TV: To assign the max. number of PAY TV programs [1-99].

Note: PAY TV available only if Configuration-Interface system set to YES.

The total max. number of programs available is 120.

• TV installation

System: To select the TV system: [EUROPE, FRANCE, UK].

Note: System appears only if "MULTI F" is selected in the Configuration menu.

Search: To search for the video channels or to input the frequency digit.

Fine tune: To adjust the tuning when a video channel is not well tuned.

Programme: To assign a video channel to a TV or INFO or PAY TV program.

More: More program options

- **Protection:** To set the program protection [YES - NO].

- **Picture Mute:** To blank the picture of a video program [YES - NO].

- **Sound Mute:** To mute the sound of a video program [YES - NO].

Store: To store the selections.

• Radio install

Note: Available only if configuration radio set to INT or EXT.

Search: To search for the radio channels or to input the frequency digits.

Programme: To assign a radio channel to a radio program.

Protection: To set the program protection [YES - NO].

Store: To store the selections.

• Parameter setting

Initial setting

Switch on channel: To select the switch on program [TV - INFO].

Switch on volume: To set the switch on volume [00 - 63].

Display standby: To set the light intensity of the led display in standby mode [1-5].

Display on: To set the light intensity of the led display in TV on mode [1-5].

Welcome message: To display the welcome message [YES - NO].

To insert the message use the cursor up and down to select the character and the cursor left and right to navigate.

Picture setting

To set picture settings (low-normal-high) that can be recalled with the PICTURE button on the RC.

Block function

Hotel mode: To enable maximum volume, block local, free protected options [YES - NO].

Maximum volume: To set the max. volume limitation [00 - 63].

Block local: To lock the local controls of the TV.

Free protected: To free at once all the protected programs.

Time setting: To set the time of the clock.

Time downloading: To link the time of the clock to the teletext of the selected program (TV-INFO-PAY TV).

Tips

• To quickly install the TV

Philips has designed also other tools for quick installation, like the SMART-LOADER or the ACI. For more information ask the nearest Philips branch office.

• To clean the TV

Clean the TV using a slightly damp chamois leather.

Never use aggressive cleaning agents.

• Problems with no solution:

Switch your TV off and on again with the **①** button.

Never attempt to repair a defective TV set yourself.

Switch off the TV and call your dealer or TV-technician when nothing helps or when:

- A white horizontal stripe appears across the whole screen.

- The red lamp below the screen starts blinking when no buttons are pressed on the remote control.

Environmental information

Your TV contains material which can be recycled and reused. At end of life specialized companies can dismantle the discarded TV to concentrate the reusable materials and to minimize the amount of materials to be disposed off.

Please find out about local regulations on disposal of your old TV set.

Televisions consume energy in the stand-by mode. Energy consumption contributes to air and water pollution. We advise you to switch off your TV overnight instead of leaving it on stand-by. You save energy and the picture tube is demagnetised which maintains good picture quality.

11. List of abbreviations

| | |
|---------------|--|
| AV+C | AV switch signal (0V antenna, 4V SVHS, 8V scart) |
| AFC | Automatic Frequency Control |
| AGC | Automatic Gain Control |
| AM SOUND/ | AM modulated sound signal or audio extern in |
| AUDIO IN | |
| AQUADAG | Conducting layer on rear side surface of CRT |
| AUDIO-IN | Extern Audio in via scart socket |
| AUDIO-OUT | Audio out via scart socket |
| B | Blue signal |
| B.SCART | Blue signal (via scart) |
| BASEBAND- | Output signal of video detector |
| CVBS | |
| BEAM-INFO | Beam current information |
| BG/1 | Switch signal for PAL BG and PAL I |
| BG/L | Switch signal for PAL BG and SECAM L |
| BG/L' | Switch signal for PAL BG and SECAM L " |
| BRIGHTNESS | Brightness control |
| B-TXT | Blue signal via teletext |
| C | Chrominance signal |
| CONTRAST | Contrast control |
| CVBS-EXT | External CVBS - signal (via scart) |
| CVBS-INT | Internal CVBS-signal (input via scart) |
| CVBS-INT1 | Internal CVBS-signal (via tuner) |
| CVBS-TXT | CVBS-signal for teletext |
| EHT | Extra high tension for CRT (25KV) |
| FAST BL.TXT | Fast blanking via teletext |
| FAST.BL.SCART | Fast blanking via scart |
| ff | filament voltage for the crt |
| FOCUS | Focus voltage for the CRT |
| G | Green signal |
| G.SCART | Green signal via scart |
| G-TXT | Green signal via teletext |
| H-DRIVE | Horizontal drive control |
| HFB | Horizontal feedback |
| IDENT.VCR | Status signal "high in the external mode. This signal blocks the IDENT of IC7015-6A temporarily, so the TV is not switched off after 15min.. |
| IDENT1 | IDENT-signal derived from IC7015-6A, that is used for suppressing of the AM-sound signal if no CVBS is present. |
| IDENT2 | Status signal of IC7015-6B. Low CVBS present. High CVBS not present. |
| IF | Intermediate frequency |
| INT/EXT | Switch signal Internal/external |
| L/L' | Switch signal SECAM L/SECAM L' |
| L/L' | Switch signal SECAM L/SECAM L' |
| NIL | Non Inter Lace |
| ON/OFF STATUS | On/off status signal |
| OSD-FAST BL | Fast blanking via OSD |
| OSD-G | Green signal via OSD |
| POR | Power on reset |
| R | Red signal |
| R.SCART | Red signal via scart |
| REL-BUS | Release bus signal from system panel. |
| R-TXT | Red signal via teletext |
| SANDCASTLE1 | Sandcastle-signal 1 |
| SANDCASTLE2 | Sandcastle -signal 2 |
| SATURATION | Saturation |
| SC-OVER | Scart-signal suppression |
| SCL | Clock line IIC-bus |
| SDA | Data line of the IIC-bud |
| SDM | Service Default Mode |
| SHARPNESS | Sharpness control |
| CONTROL | |
| SL-EN | Signal to select the smart loader |
| STANDBY | Standby-switch signal |
| STATUS | Switch signal. High CVBS via scart. Low internal CVBS |
| V-DRIVE | Vertical drive |
| VFB | Vertical feedback |
| VG2 | VG2 voltage |
| VOLUME | Volume control |
| V-VARI | Tuning voltage |
| Y | Luminance signal |

Notes:

12. Spare parts list / Stükliste / Liste des pièces

Chassis A7H.1

23

| Main carrier [A1,A3-A9] | Part Number | Component Description | Value | Unit | Quantity | Notes | Part Number | Component Description | Value | Unit | Quantity | Notes | Part Number | Component Description | Value | Unit | Quantity | Notes |
|-------------------------|----------------|----------------------------|-------|------|----------|-------|----------------|-----------------------|--------|------|----------|-------|----------------|-----------------------|-------|-------|----------|-------|
| Various | | | | | | | | | | | | | | | | | | |
| ▲ 4822 276 12597 | 4822 122 32139 | Mains switch | 12pF | 2% | 63V | | 2431▲ | 5322 126 10223 | 4.7nF | 10% | 63V | | 3011 | 4822 051 20154 | 150k | 5% | 0.1W | |
| 4822 276 13307 | 4822 122 13689 | Operating switch assy | 18pF | 1% | 63V | | 2432▲ | 4822 122 33893 | 18nF | 10% | 63V | | 3012▲ | 4822 051 20323 | 3k3 | 5% | 0.1W | |
| 2050 | 4822 126 13296 | 100nF | 10% | 16V | | 2500 | 4822 126 13597 | 330pF | 10% | 500V | | 3014 | 4822 117 11449 | 2k2 | 1% | 0.1W | | |
| 2053 | 4822 126 13296 | 100nF | 10% | 16V | | 2501▲ | 4822 126 11524 | 1.5nF | 10% | 1KV | | 3016 | 4822 051 10102 | 1k | 2% | 0.25W | | |
| 2080▲ | 5322 122 32654 | 22nF | 10% | 63V | | 2502 | 4822 121 43856 | 4.7nF | 5% | 250V | | 3017 | 4822 117 10833 | 10k | 1% | 0.1W | | |
| ▲ 4822 276 12597 | 4822 124 40763 | Mains switch | 2.2μF | 100 | V | | 2503 | 5322 121 42489 | 33nF | 5% | 250V | | 3018 | 4822 051 20333 | 33k | 5% | 0.1W | |
| 4822 276 13307 | 4822 126 13296 | Operating switch assy | 100nF | 10% | 16V | | 2505▲ | 4822 126 14037 | 2.2nF | 20% | 250V | | 3020 | 4822 116 52231 | 820Ω | 5% | 0.5W | |
| 2101▲ | 5322 126 10223 | 4.7nF | 10% | 63V | | 2506 | 4822 121 43343 | 4.7nF | 10% | 400V | | 3021 | 4822 101 11204 | 4.7k | 30% | | | |
| ▲ 4822 265 30389 | 4822 124 11529 | 16V | 47μF | 20% | V | | 2507▲ | 4822 121 10512 | 275V | 220n | 20% | | 3022 | 4822 051 20822 | 8k2 | 5% | 0.1W | |
| Con. 2P (0041) | 4822 121 41738 | 270nF | 5% | 63V | | 2508▲ | 4822 126 11141 | 2.2nF | 10% | 1KV | | 3023 | 4822 051 20182 | 1k8 | 5% | 0.1W | | |
| Con. 2P (0050) | 4822 122 33891 | 3.3nF | 10% | 63V | | 2509▲ | 4822 126 11141 | 2.2nF | 10% | 1KV | | 3030 | 4822 116 52175 | 100Ω | 5% | 0.5W | | |
| ▲ 4822 265 30389 | 4822 122 33891 | 3.3nF | 10% | 63V | | 2510▲ | 4822 121 42004 | 10nF | 10% | 400V | | 3031 | 4822 051 20331 | 330Ω | 5% | 0.1W | | |
| Con. 2P (0051) | 4822 122 33891 | 3.3nF | 10% | 63V | | 2511 | 4822 124 41596 | 22μF | 20% | 50V | | 3032▲ | 4822 051 20121 | 120Ω | 5% | 0.1W | | |
| ▲ 4822 265 20709 | 4822 122 10223 | 4.7nF | 10% | 63V | | 2512 | 4822 124 40201 | 1000μF | 20% | 16V | | 3032 | 4822 117 10353 | 150Ω | 1% | 0.1W | | |
| Con. 2P (0061) | 4822 122 33175 | 2.2nF | 20% | 50V | | 2513 | 4822 126 13694 | 68pF | 1% | 63V | | 3033 | 4822 051 20182 | 1k8 | 5% | 0.1W | | |
| Con. 3P (0040) | 4822 122 33175 | 2.2nF | 20% | 50V | | 2514 | 4822 124 40201 | 1000μF | 20% | 16V | | 3035 | 4822 051 20104 | 100k | 5% | 0.1W | | |
| Con. 3P (0063) | 4822 122 33175 | 2.2nF | 20% | 50V | | 2515 | 4822 124 81257 | 47μF | 50/10% | 200V | | 3036 | 4822 051 20104 | 100k | 5% | 0.1W | | |
| 4822 290 40284 | 4822 122 40284 | Con. 3P (0063) | | | | | 2516 | 4822 124 11532 | 47μF | 400V | 20% | | 3043 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 4822 267 41213 | 4822 124 40763 | Con. 4P eco duo | | | | | 2517▲ | 5322 122 34123 | 1nF | 10% | 50V | | 3044 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 4822 267 40699 | 4822 124 40763 | Con. 4P (PD1) | | | | | 2518 | 5322 122 32452 | 47pF | 5% | 63V | | 3049 | 4822 051 20683 | 68k | 5% | 0.1W | |
| ▲ 4822 267 41208 | 4822 124 40763 | Con. 4P (0045) | | | | | 2519▲ | 4822 126 11141 | 2.2nF | 10% | 1KV | | 3051 | 4822 051 10102 | 1k | 2% | 0.25W | |
| 4822 265 30378 | 4822 124 40763 | Con. 4P (0048) | | | | | 2520▲ | 4822 126 11141 | 2.2nF | 10% | 1KV | | 3100 | 4822 051 20184 | 180k | 5% | 0.1W | |
| 4822 265 30899 | 4822 124 40763 | Con. 5P (0053) | | | | | 2521▲ | 4822 124 12126 | 10μF | 20% | 400V | | 3110 | 4822 051 20331 | 330Ω | 5% | 0.1W | |
| 4822 267 30546 | 4822 124 40763 | Con. 6P | | | | | 2522 | 4822 126 13599 | 3.3nF | 10% | 500V | | 3111 | 4822 051 20561 | 560Ω | 5% | 0.1W | |
| 4822 265 40252 | 4822 124 40763 | Con. 7P RFK1 | | | | | 2525 | 5322 121 42386 | 100nF | 5% | 63V | | 3112 | 4822 051 20822 | 8k2 | 5% | 0.1W | |
| 4822 290 40295 | 4822 124 40763 | Con. 7P (0049) | | | | | 2526 | 4822 124 40201 | 1000μF | 20% | 16V | | 3115 | 4822 116 83883 | 470Ω | 5% | 0.5W | |
| 4822 265 40818 | 4822 124 40763 | Con. 8P (0056) | | | | | 2527 | 4822 126 13597 | 330pF | 10% | 500V | | 3116 | 4822 117 11449 | 2k1 | 2% | 0.1W | |
| ▲ 4822 267 60243 | 4822 124 40763 | Con. 21P Scart | | | | | 2528 | 4822 121 42408 | 220nF | 5% | 63V | | 3117 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 4822 492 71655 | 4822 124 40763 | Spring fix. IC7157 | | | | | 2529 | 4822 124 40756 | 1μF | 20% | 100V | | 3118 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 4822 492 11528 | 4822 124 40763 | Spring fix. IC7401 | | | | | 2531 | 5322 121 42498 | 680nF | 5% | 63V | | 3119 | 4822 117 10833 | 10k | 1% | 0.1W | |
| IC7402 | | | | | | | 2532 | 4822 124 40201 | 1000μF | 20% | 16V | | 3120 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 4822 492 70871 | 4822 124 40763 | Spring fix. IC7422 | | | | | 2533 | 4822 124 40201 | 100μF | 20% | 16V | | 3121 | 4822 051 10104 | 100k | 2% | 0.25W | |
| 4822 492 70871 | 4822 124 40763 | Spring fix. IC7504 | | | | | 2534 | 4822 124 81029 | 100μF | 20% | 16V | | 3124▲ | 4822 052 10109 | 102 | 5% | 0.33W | |
| ▲ 4822 256 92053 | 4822 124 40763 | Fuse holder (1501) | | | | | 2535 | 5322 121 42386 | 100nF | 5% | 63V | | 3125 | 4822 117 11149 | 82k | 1% | 0.1W | |
| 4822 256 91918 | 4822 124 40763 | LED holder | | | | | 2536 | 5322 121 42498 | 680nF | 5% | 63V | | 3126 | 4822 118 52289 | 5k6 | 5% | 0.5W | |
| 4822 404 31451 | 4822 124 40763 | Bracket fix. IR receiver | | | | | 2537 | 4822 124 41596 | 22μF | 20% | 50V | | 3127 | 4822 051 20223 | 22k | 5% | 0.1W | |
| 4822 402 10524 | 4822 124 40763 | Tuner bracket (extended) | | | | | 2538 | 5322 121 42489 | 33nF | 5% | 250V | | 3134▲ | 4822 053 11479 | 470 | 5% | 2W | |
| 4822 404 31452 | 4822 124 40763 | Tuner bracket | | | | | 2539▲ | 4822 124 40433 | 47μF | 20% | 25V | | 3134 | 4822 053 11569 | 560 | 5% | 2W | |
| 4822 402 10178 | 4822 124 40763 | Interface bracket (TV cap) | | | | | 2540 | 4822 121 41579 | 10μF | 20% | 100V | | 3141▲ | 4822 051 10472 | 4k7 | 2% | 0.25W | |
| 1001 | 4822 210 10715 | Tuner FL2477/85 PLL | | | | | 2541▲ | 4822 124 40763 | 220nF | 5% | 63V | | 3142 | 4822 116 83863 | 10k | 5% | 0.5W | |
| 1015 | 4822 242 70936 | Filter 38.9MHz OFWFJ1952M | | | | | 2542▲ | 4822 124 40763 | 10μF | 20% | 50V | | 3143 | 4822 051 20223 | 22k | 5% | 0.1W | |
| 1015▲ | 4822 242 72197 | Filter 38.9MHz OFWK2950M | | | | | 2543 | 5322 122 32531 | 100pF | 5% | 63V | | 3144 | 4822 116 52264 | 27k | 5% | 0.5W | |
| 1015 | 4822 242 81388 | Filter 38.9MHz OFWG1961M | | | | | 2544 | 4822 124 40763 | 100μF | 20% | 100V | | 3145 | 4822 051 20224 | 220k | 5% | 0.1W | |
| 1015 | 4822 242 81737 | Filter 38.9MHz OFWG1965M | | | | | 2545 | 4822 124 40763 | 2.2μF | 100 | V | | 3146 | 4822 116 52234 | 100k | 5% | 0.5W | |
| 1032 | 4822 242 72211 | Filter 5.5MHz (TPS) | | | | | 2546 | 4822 122 32531 | 100pF | 5% | 63V | | 3147 | 4822 050 11002 | 1k | 1% | 0.4W | |
| 1032 | 4822 242 81712 | Filter 5.5MHz (TPWA04B) | | | | | 2547 | 4822 122 32531 | 100pF | 5% | 63V | | 3148 | 4822 051 20224 | 220k | 5% | 0.1W | |
| 1033 | 4822 153 30025 | Filter 6MHz (TFS) | | | | | 2548 | 4822 122 32531 | 100pF | 5% | 63V | | 3149 | 4822 051 20223 | 22k | 5% | 0.1W | |
| 1033 | 4822 242 81301 | Filter 6.5MHz ((TPS)) | | | | | 2549 | 4822 122 32531 | 100pF | 5% | 63V | | 3150 | 4822 116 52269 | 3k3 | 5% | 0.5W | |
| 1033 | 4822 242 81572 | Filter 6MHz (TPS) | | | | | 2550 | 4822 122 32531 | 100pF | 20% | 25V | | 3151 | 4822 051 10332 | 3k3 | 2% | 0.25W | |
| 1101 | 4822 242 81423 | Filter 38.9MHz OFWL9453M | | | | | 2551 | 4822 122 32535 | 680pF | 10% | 63V | | 3152 | 4822 117 11139 | 1k5 | 1% | 0.1W | |
| 1135 | 4822 242 70714 | Filter 5.5MHz | | | | | 2552 | 4822 122 32535 | 680pF | 10% | 63V | | 3153 | 4822 117 10833 | 10k | 1% | 0.1W | |
| 1135 | 4822 242 71841 | Filter 6.0MHz | | | | | 2553 | 4822 122 32535 | 100pF | 5% | 63V | | 3154 | 4822 051 20273 | 27k | 5% | 0.1W | |
| 1136▲ | 4822 242 10316 | Filter 6.5MHz | | | | | 2554 | 4822 122 32531 | 100pF | 5% | 63V | | 3154 | 4822 051 20562 | 5k6 | 5% | 0.1W | |
| 1136 | 4822 242 71713 | Filter 6.0MHz | | | | | 2555 | 4822 122 32531 | 100pF | 5% | 63V | | 3155▲ | 4822 051 20332 | 3k3 | 5% | 0.1W | |
| 1501▲ | 4822 070 33152 | Fuse3.15A | | | | | 2556 | 4822 122 32448 | 10pF | 5% | 50V | | 3156▲ | 4822 051 10103 | 10k | 2% | 0.25W | |
| 1502▲ | 4822 252 51185 | Fuse 630mA | | | | | 2557 | 5322 122 32448 | 10pF | 5% | 50V | | 3169 | 4822 116 83864 | 10k | 5% | 0.5W | |
| 1679 | 4822 242 10328 | X-tal 8MHz | | | | | 2558 | 5322 122 32658 | 22pF | 5% | 50V | | 3170 | 4822 116 83884 | 47k | 5% | 0.5W | |
| 1685 | 4822 242 30842 | IR receiver | | | | | 2559 | 5322 122 32658 | 22pF | 5% | 50V | | 3171 | 4822 117 11449 | 2k2 | 1% | 0.1W | |
| 1701 | 4822 242 81246 | X-tal 27MHz | | | | | 2560 | 5322 122 32535 | 680pF | 10 | | | | | | | | |

| | | | | | | | | | | | |
|-------|----------------|----------------|-------|----------------|--------------|-------|----------------|-------------------------------|-------|----------------|-------------|
| 3353 | 4822 051 20474 | 470k 5% 0.1W | 3615 | 4822 117 10834 | 47k 1% 0.1W | 3752▲ | 4822 051 20101 | 100Ω 5% 0.1W | 6500 | 4822 130 34233 | BZX79-B5V1 |
| 3354 | 4822 100 11483 | 10k 30% 0.1W | 3617▲ | 4822 051 20472 | 4k7 5% 0.1W | 3762▲ | 4822 051 20101 | 100Ω 5% 0.1W | 6501▲ | 4822 130 34173 | BZX79-B5V6 |
| 3368 | 4822 116 83864 | 47k 5% 0.5W | 3618 | 4822 051 10332 | 3k3 2% 0.25W | 3763▲ | 4822 051 20101 | 100Ω 5% 0.1W | 6502 | 4822 130 34281 | BZX79-B15 |
| 3369 | 4822 051 20224 | 220k 5% 0.1W | 3619 | 4822 050 11002 | 1k 1% 0.4W | 3764▲ | 4822 051 20101 | 100Ω 5% 0.1W | 6503 | 4822 130 42488 | BYD33D |
| 3370 | 4822 051 20684 | 680Ω 5% 0.1W | 3620 | 4822 116 83864 | 10k 5% 0.5W | 3765▲ | 4822 051 20101 | 100Ω 5% 0.1W | 6504 | 4822 130 41487 | BYV95C |
| 3400 | 4822 051 20333 | 33k 5% 0.1W | 3621 | 4822 051 20223 | 22k 5% 0.1W | 3766▲ | 4822 117 10834 | 10k 1% 0.1W | 6506 | 4822 130 70021 | S1N6B0 |
| 3401 | 4822 051 20154 | 150k 5% 0.1W | 3622 | 4822 051 20333 | 33k 5% 0.1W | 3767▲ | 4822 051 20472 | 4k7 5% 0.1W | 6507 | 5322 130 31938 | BYV27-200 |
| 3402 | 4822 051 20681 | 680Ω 5% 0.1W | 3623 | 4822 117 10833 | 10k 1% 0.1W | 3770▲ | 4822 051 20472 | 4k7 5% 0.1W | 6508 | 4822 209 81397 | TL431CLPST |
| 3402 | 4822 117 11454 | 820Ω 1% 0.1W | 3624 | 4822 051 20104 | 100k 5% 0.1W | 3781 | 4822 051 10822 | 8k2 2% 0.25W | 6509 | 4822 130 80883 | BZV55-C4V7 |
| 3403▲ | 4822 052 10689 | 68Ω 5% 0.33W | 3625 | 4822 051 20333 | 33k 5% 0.1W | 3786 | 4822 051 10102 | 1k 2% 0.25W | 6510 | 4822 130 34197 | BZX79-B12 |
| 3404▲ | 4822 052 10158 | 105 5% 0.33W | 3628 | 4822 051 20333 | 33k 5% 0.1W | 3788 | 4822 053 10279 | 27Ω 5% 1W | 6511 | 4822 130 34197 | BZX79-B12 |
| 3405▲ | 4822 052 11228 | 22Ω 5% 0.5W | 3630 | 4822 117 12345 | 360k 1% 0.1W | 3788 | 4822 116 52175 | 100Ω 5% 0.5W | 6514 | 5322 130 83584 | TZT03-C130 |
| 3405▲ | 4822 052 11478 | 4Ω2 5% 0.5W | 3631 | 4822 050 21504 | 150k 1% 0.6W | 3850 | 4822 051 20562 | 5k6 5% 0.1W | 6515 | 5322 130 31932 | TZT03-C200 |
| 3406 | 4822 053 10182 | 1k8 5% 1W | 3632 | 4822 051 10102 | 1k 2% 0.25W | 3851▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6516▲ | 4822 130 32896 | BYD33M |
| 3407 | 4822 101 11376 | 220Ω pot.meter | 3648 | 4822 116 52195 | 47Ω 5% 0.5W | 3853▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6517 | 5322 130 31932 | TZT03-C200 |
| 3409 | 4822 051 10102 | 1k 2% 0.25W | 3649 | 4822 116 52195 | 47Ω 5% 0.5W | 3855▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6518 | 4822 130 42488 | BYD33D |
| 3410 | 4822 051 20393 | 39k 5% 0.1W | 3650 | 4822 050 11002 | 1k 1% 0.4W | 3860▲ | 4822 051 20471 | 47Ω 5% 0.1W | 6519 | 5322 130 31938 | BYV27-200 |
| 3412 | 4822 117 11449 | 2k2 1% 0.1W | 3651 | 4822 117 10833 | 10k 1% 0.1W | 3862▲ | 4822 051 20471 | 47Ω 5% 0.1W | 6520▲ | 4822 130 32715 | SB340 |
| 3415▲ | 4822 053 12279 | 27Ω 5% 3W | 3652▲ | 4822 051 20472 | 4k7 5% 0.1W | 3863 | 4822 051 20223 | 22k 5% 0.1W | 6521 | 4822 130 42488 | BYD33D |
| 3415 | 4822 053 12399 | 39Ω 5% 3W | 3653▲ | 4822 051 20472 | 4k7 5% 0.1W | 3864 | 4822 116 52289 | 5k6 5% 0.5W | 6522▲ | 4822 130 30621 | IN4148 |
| 3417 | 4822 116 52272 | 330k 5% 0.5W | 3654 | 4822 117 11449 | 2k2 1% 0.1W | 3865▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6523▲ | 4822 130 30621 | IN4148 |
| 3419 | 4822 116 52303 | 8k2 5% 0.5W | 3655 | 4822 117 11384 | 2k7 1% 0.1W | 3871 | 4822 117 11503 | 220Ω 1% 0.1W | 6524▲ | 4822 130 30621 | IN4148 |
| 3420 | 4822 116 83882 | 39k 5% 0.5W | 3656 | 4822 116 52283 | 4k7 5% 0.5W | 3875▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6540 | 4822 130 34197 | BZX79-B12 |
| 3420 | 4822 116 83884 | 47k 5% 0.5W | 3658 | 4822 117 11384 | 2k7 1% 0.1W | 3876 | 4822 051 10332 | 3k3 2% 0.25W | 6602 | 4822 130 82037 | HZT33 |
| 3421 | 4822 116 52244 | 15k 5% 0.5W | 3659 | 4822 051 20182 | 1k8 5% 0.1W | 3878 | 4822 117 10965 | 18k 1% 0.1W | 6650 | 4822 130 34233 | BZX79-B5V1 |
| 3422 | 4822 117 11384 | 2k7 1% 0.1W | 3660 | 4822 116 52175 | 100Ω 5% 0.5W | 3879 | 4822 051 10473 | 47k 2% 0.25W | 6651 | 4822 130 80905 | BZV55-F5V1 |
| 3423 | 4822 051 20561 | 560Ω 5% 0.1W | 3661 | 4822 050 11002 | 1k 1% 0.4W | 3880 | 4822 051 20562 | 5k6 5% 0.1W | 6658▲ | 4822 130 30621 | IN4148 |
| 3424▲ | 4822 052 10109 | 10Ω 5% 0.33W | 3662 | 4822 051 20333 | 33k 5% 0.1W | 3881 | 4822 117 10833 | 10k 1% 0.1W | 6663 | 4822 209 72895 | TLUV5320 |
| 3425 | 4822 053 11129 | 12Ω 5% 2W | 3663 | 4822 117 10353 | 150Ω 1% 0.1W | 3882▲ | 4822 051 20471 | 47Ω 5% 0.1W | 6704 | 4822 130 82886 | BZV55-B3V0 |
| 3426 | 4822 116 52289 | 6k6 5% 0.5W | 3664 | 4822 051 20683 | 68k 5% 0.1W | 3888 | 4822 117 10833 | 10k 1% 0.1W | 6705 | 4822 130 80446 | BAS32L |
| 3427▲ | 4822 052 11108 | 1Ω 5% 0.5W | 3665 | 4822 051 20683 | 68k 5% 0.1W | 3889 | 4822 051 10751 | 75Ω 2% 0.25W | 6751 | 4822 130 81227 | BZV55-F5V6 |
| 3428▲ | 4822 052 11108 | 1Ω 5% 0.5W | 3666 | 4822 116 83868 | 150Ω 5% 0.5W | 3890 | 4822 117 11507 | 6k8 1% 0.1W | 6849▲ | 4822 130 30621 | IN4148 |
| 3430 | 4822 052 10821 | 820Ω 5% 0.33W | 3667 | 4822 051 20471 | 47Ω 5% 0.1W | 3891 | 4822 117 10833 | 10k 1% 0.1W | 6850 | 4822 130 80446 | BAS32L |
| 3431▲ | 4822 052 11471 | 470Ω 5% 0.5W | 3668 | 4822 117 11384 | 2k7 1% 0.1W | 3892 | 4822 116 52269 | 3k3 5% 0.5W | 6851 | 4822 130 80446 | BAS32L |
| 3432 | 4822 051 20105 | 1M 5% 0.1W | 3669 | 4822 051 20433 | 43k 5% 0.1W | 3895▲ | 4822 116 83953 | 75Ω 5% 0.125W | 6852 | 4822 130 80446 | BAS32L |
| 3432 | 4822 051 20225 | 2M2 5% 0.1W | 3670 | 4822 117 10833 | 10k 1% 0.1W | 4xxx | 4822 051 10008 | Ω 5% 0.25W | 6853 | 4822 130 80446 | BAS32L |
| 3433 | 4822 051 20393 | 39k 5% 0.1W | 3671▲ | 4822 051 10103 | 10k 2% 0.25W | | | | 6854 | 4822 130 80446 | BAS32L |
| 3434 | 4822 051 20223 | 22k 5% 0.1W | 3672 | 4822 117 11449 | 2k2 1% 0.1W | | | | 6855 | 4822 130 80446 | BAS32L |
| 3436▲ | 4822 052 10151 | 150Ω 5% 0.33W | 3673 | 4822 117 10833 | 10k 1% 0.1W | | | | 6865 | 4822 130 80446 | BAS32L |
| 3437▲ | 4822 053 11103 | 10k 5% 2W | 3674 | 4822 117 11449 | 2k2 1% 0.1W | | | | | | |
| 3440 | 4822 116 83868 | 150Ω 5% 0.5W | 3675 | 4822 116 83864 | 10k 5% 0.5W | 5010 | 4822 157 63081 | 0.56μH 20% | 7001▲ | 4822 209 80817 | L7805CV |
| 3500 | 4822 051 20331 | 330Ω 5% 0.1W | 3676 | 4822 116 83864 | 10k 5% 0.5W | 5010 | 4822 157 63858 | 0.39μH | 7015 | 4822 209 15106 | TDA8361E/N5 |
| 3500 | 4822 117 11504 | 270Ω 1% 0.1W | 3677 | 4822 117 11384 | 2k7 1% 0.1W | 5032 | 4822 157 53634 | 5.6μH 10% | 7015 | 4822 209 15251 | TDA8362E/N5 |
| 3501▲ | 4822 051 20101 | 100Ω 5% 0.1W | 3678 | 4822 117 11449 | 82k 1% 0.1W | 5040 | 4822 157 71518 | 33mH | 7030▲ | 5322 130 41982 | BC848B |
| 3502 | 4822 116 83864 | 10k 5% 0.5W | 3679 | 4822 117 11449 | 2k2 1% 0.1W | 5040 | 4822 157 71522 | 38mH | 7103 | 5322 130 42755 | BC847C |
| 3503 | 4822 116 83864 | 10k 5% 0.5W | 3680▲ | 4822 051 20101 | 100Ω 5% 0.1W | 5043 | 4822 157 71517 | 38mH | 7125 | 4822 209 63105 | TDA3843/V3 |
| 3504 | 4822 116 52219 | 330k 5% 0.5W | 3681▲ | 4822 051 20472 | 4k7 5% 0.1W | 5195 | 4822 157 11213 | 22μH | 7126▲ | 5322 130 41982 | BC848B |
| 3505 | 4822 116 52213 | 180Ω 5% 0.5W | 3682▲ | 4822 051 20101 | 100Ω 5% 0.1W | 5196 | 4822 157 11213 | 22μH | 7126▲ | 5322 130 41982 | BC848B |
| 3506 | 4822 117 12094 | 0.33Ω 5% | 3683▲ | 4822 051 20101 | 100Ω 5% 0.1W | 5415 | 4822 157 10359 | 33μH | 7140 | 5322 209 10576 | HEF4053BD |
| 3507▲ | 4822 050 21202 | 1k2 1% 0.6W | 3684▲ | 4822 051 20332 | 3k3 5% 0.1W | 5415 | 4822 157 71519 | 47μH 5% | 7141▲ | 5322 130 41982 | BC848B |
| 3507 | 4822 050 21502 | 1k5 1% 0.6W | 3685▲ | 4822 051 20332 | 3k3 5% 0.1W | 5421 | 4822 157 11421 | 100μH 10% | 7142▲ | 5322 130 41982 | BC848B |
| 3508 | 4822 053 10682 | 6k8 1% 1W | 3686▲ | 4822 051 20472 | 4k7 5% 0.1W | 5422▲ | 4822 140 10639 | LOT (Line output transformer) | 7143▲ | 5322 130 41982 | BC848B |
| 3509 | 4822 116 52271 | 33k 5% 0.5W | 3687 | 4822 051 20273 | 27k 5% 0.1W | 5424▲ | 4822 156 50097 | Linearity coil | 7145▲ | 5322 130 41982 | BC848B |
| 3510 | 4822 117 12096 | 22k 1% | 3688 | 4822 051 20333 | 33k 5% 0.1W | 5500▲ | 4822 146 10461 | Power trafo | 7146▲ | 5322 130 41982 | BC848B |
| 3511▲ | 4822 053 10272 | 2k7 5% 1W | 3689 | 4822 051 20333 | 33k 5% 0.1W | 5502▲ | 4822 146 10478 | Power trafo | 7147▲ | 5322 130 41982 | BC848B |
| 3512 | 4822 116 52297 | 68k 5% 0.5W | 3690▲ | 4822 051 20332 | 33k 5% 0.1W | 5503 | 4822 156 10494 | Ferrite bead | 7150 | 4822 209 32531 | TDA7056A/N2 |
| 3513 | 4822 053 10334 | 330k 5% 1W | 3691 | 4822 116 52234 | 100k 5% 0.5W | 5504 | 4822 157 53348 | Choke | 7170 | 5322 130 41982 | BC848B |
| 3514▲ | 4822 052 10108 | 112 5% 0.33W | 3692▲ | 4822 051 20472 | 4k7 5% 0.1W | 5505 | 4822 157 70826 | 2.4μH | 7243▲ | 5322 130 41982 | BC848B |
| 3515▲ | 4822 052 10108 | 1Ω 5% 0.33W | 3704 | 4822 050 11002 | 1k 1% 0.4W | 5506 | 4822 157 50964 | 100μH | 7250 | 4822 209 90129 | TDA8395/N2 |
| 3516 | 4822 116 40137 | PTC 360 365V | 3705 | 4822 051 20273 | 27k 5% 0.1W | 5509 | 4822 157 71915 | 5.6μH | 7271 | 4822 209 12635 | TD4A665/V4 |
| 3517▲ | 4822 051 20101 | 100Ω 5% 0.1W | 3706 | 4822 051 20331 | 330Ω 5% 0.1W | 5601▲ | 4822 157 51462 | 10μH | 7400▲ | 4822 130 40981 | BC37-25 |
| 3517 | 4822 117 11504 | 270Ω 1% 0.1W | 3707 | 4822 117 11449 | 2k2 1% 0.1W | 5671 | 4822 157 71703 | 82μH | 7401 | 4822 130 40917 | BD238 |
| 3518 | 4822 117 12952 | 120 | | | | | | | | | |

7658▲ 4822 209 73852 PMBT2369
 7665▲ 5322 130 41982 BC848B
 7670▲ 5322 130 41982 BC848B
 7672▲ 5322 130 41982 BC848B
 7674▲ 5322 130 41982 BC848B
 7685 4822 209 32709 ST24C04FB1
 7700 4822 209 90125 SAA5254/P/E/MIC
 7702 5322 209 10357 HEF4066BP

7711▲ 5322 130 41982 BC848B
 7713▲ 5322 130 41982 BC848B
 7715▲ 5322 130 41982 BC848B
 7731 5322 130 41983 BC858B
 7732▲ 5322 130 41982 BC848B
 7740▲ 5322 130 41982 BC848B
 7745▲ 5322 130 41982 BC848B
 7751▲ 4822 130 41344 BC337-40
 7856▲ 5322 130 41982 BC848B
 7857 5322 130 41983 BC858B

7858▲ 5322 130 41982 BC848B
 7875▲ 5322 130 41982 BC848B
 7876▲ 5322 130 41982 BC848B

Smart Loader [A6A]

Various

4822 212 10424 Smart Loader Panel
 4822 265 10457 Con. 8P F-pin (LM1)



3930 4822 116 83883 470Ω 5% 0.5W
 3931▲ 4822 052 10279 27Ω 5% 0.33W
 3932▲ 4822 052 10279 27Ω 5% 0.33W
 3933▲ 4822 052 10279 27Ω 5% 0.33W



7930 5322 209 10576 HEF4053BD

CRT Panel [B1]

Various

4822 212 11573 CRT panel (14")
 4822 212 11574 CRT panel (21")
 ▲ 4822 255 70261 CRT socket (21")
 ▲ 4822 255 70306 CRT socket (14"),
 8P m-neck
 1371▲ 4822 252 51175 Fuse 2.5A



2301 4822 124 80791 470μF 20% 16V
 2304 5322 122 31863 330pF 5% 50V
 2304 5322 126 10733 680pF 5% 50V
 2324 4822 122 33216 270pF 5% 50V
 2324 5322 116 80853 560pF 5% 63V
 2344 5322 122 31863 330pF 5% 50V
 2344 5322 126 10733 680pF 5% 50V
 2373 4822 121 41926 33nF 5% 630V
 2374 4822 124 81107 4.7μF 20% 250V



3300 4822 100 12226 2k2 30% LIN0.1W
 3301 4822 116 83872 220Ω 5% 0.5W
 3303 4822 116 52191 330Ω 5% 0.5W
 3304 4822 116 52197 56Ω 5% 0.5W
 3310 4822 100 12227 4k7 30% LIN0.1W
 3311 4822 116 52207 1k2 5% 0.5W
 3312 4822 116 52175 100Ω 5% 0.5W
 3313 4822 116 83868 150Ω 5% 0.5W
 3314▲ 4822 053 11123 12k 5% 2W

3315 4822 050 21502 1k5 1% 0.6W
 3316 4822 051 20562 5k6 5% 0.1W
 3320 4822 100 12226 2k2 30% LIN0.1W
 3321 4822 116 52222 390Ω 5% 0.5W
 3322 4822 116 52243 1k5 5% 0.5W
 3323 4822 051 20331 330Ω 5% 0.1W
 3324 4822 116 52197 56Ω 5% 0.5W
 3325 4822 051 20562 5k6 5% 0.1W
 3330 4822 100 12227 4k7 30% LIN0.1W
 3331 4822 116 52207 1k2 5% 0.5W

3333 4822 116 83868 150Ω 5% 0.5W
 3334▲ 4822 053 11123 12k 5% 2W
 3335 4822 050 21502 1k5 1% 0.6W

3336 4822 116 52175 100Ω 5% 0.5W
 3339▲ 4822 053 11123 12k 5% 2W
 3343 4822 051 20331 330Ω 5% 0.1W
 3344 4822 116 52197 56Ω 5% 0.5W
 3346 4822 100 12227 4k7 30% lin.1W
 3347 4822 116 52207 1k2 5% 0.5W
 3348 4822 116 83868 150Ω 5% 0.5W
 3352 4822 116 52175 100Ω 5% 0.5W
 3355 4822 050 21502 1k5 1% 0.6W
 3357 4822 051 20562 5k6 5% 0.1W
 3360 4822 117 11504 270Ω 1% 0.1W
 3361▲ 4822 051 20332 3k3 5% 0.1W
 3362 4822 051 20681 680Ω 5% 0.1W
 3363▲ 4822 052 10109 10Ω 5% 0.33W
 3371 4822 052 10228 2Ω 5% 0.33W
 3372 4822 052 10228 2Ω 5% 0.33W
 3373 4822 050 21502 1k5 1% 0.6W
 3374 4822 050 21502 1k5 1% 0.6W

2902▲ 4822 124 41579 10μF 20% 50V
 2903▲ 4822 124 41579 10μF 20% 50V
 2905▲ 4822 124 41579 10μF 20% 50V

3901 4822 050 11002 1k 1% 0.4W
 3902 4822 116 83884 47k 5% 0.5W
 3903 4822 116 52238 12k 5% 0.5W
 3904 4822 050 11002 1k 1% 0.4W
 3905 4822 050 11002 1k 1% 0.4W
 3906 4822 116 52269 3k3 5% 0.5W
 3907 4822 116 83884 47k 5% 0.5W
 3908 4822 116 52283 4k7 5% 0.5W

6901 4822 130 34167 BZX79-B6V2



6310 4822 130 34174 BZX79-B4V7
 6314▲ 4822 130 42489 BYD33G
 6330 4822 130 34174 BZX79-B4V7
 6334▲ 4822 130 42489 BYD33G
 6350 4822 130 34174 BZX79-B4V7
 6354▲ 4822 130 42489 BYD33G
 6355 4822 130 34382 BZX79-B8V2

7901 5322 209 10576 HEF4053BD
 7902 4822 130 40937 BC548B



7300 4822 130 40937 BC548B
 7310 4822 130 41782 BF422
 7320 4822 130 40937 BC548B
 7330 4822 130 41782 BF422
 7340 4822 130 40937 BC548B
 7350 4822 130 41782 BF422
 7360 5322 130 41983 BC858B

Clock Panel [E1]

Various

4822 212 10525 Clock panel
 4822 267 41047 Con. 4P



2951▲ 4822 126 10002 100nF 20% 25V
 2952 4822 122 33498 2.7nF 10% 63V
 2953 4822 124 81029 100μF 20% 25V



3951▲ 4822 051 20101 100Ω 5% 0.1W
 3952▲ 4822 051 20101 100Ω 5% 0.1W
 3953 4822 051 10101 100Ω 2% 0.25W
 3954▲ 4822 051 20101 100Ω 5% 0.1W



6951 4822 130 80312 TLHY4400
 6952 4822 130 10212 TLHR4401



7951 4822 209 32304 SAA1064T
 7952 4822 130 42615 BC817-40
 7953 4822 130 42615 BC817-40
 7954 4822 130 42615 BC817-40
 7955 4822 130 42615 BC817-40
 7956 4822 130 10213 LTS4801G
 7957 4822 130 10213 LTS4801G
 7958 4822 130 10213 LTS4801G
 7959 4822 130 10213 LTS4801G

Radio Panel [E2]

Various

4822 212 10426 Radio Panel
 4822 267 40722 Con. 6P (RP1)
 4822 264 40239 Con. 3P (RM1)

1910 4822 210 10725 Radio tuner



2901▲ 4822 124 41579 10μF 20% 50V